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Megalopolis.

THE first "Supplementary Papers" issued by the Society for the Promotion of Hellenic Studies* constitute perhaps the most valuable volume which the Hellenic Society has issued. The proceedings are in reality those of the British School at Athens, published at the cost of the Hellenic Society, the "School" not having sufficient funds to bring out such a work; for though called by the modest title "Supplementary Papers," the publication is really the largest, as far as we remember, which the Hellenic Society has issued; a folio volume with 141 pages of letterpress and a number of large plates giving measured drawings and views of the remains at Megalopolis, with a general plan of the site.

This latter is drawn by Mr. Loring, and enables the reader to see at a glance the relative situations of the principal remains. The ancient Megalopolis lay on both sides of the river Helisson, which, with an average width of about 200 yards, winds across the middle of the site, the probable line of the ancient city walls being marked as enclosing a large area north and south of the river. Sinadou, the modern town, lies to the south-east, just outside of the ancient wall line. Close to the river, on the south or left bank, is the site of the famous theatre, the concave of the vast auditorium facing northwards, and opposed by the large rectangle of the Thersilion, the nearly square columned hall, called after the name of the man who built it, and the portico of which adjoins the back of the stage of the theatre, forming a kind of proscenium decoration to it. On the north of the river, also near the bank, are the remains of the Stoa of Philip, the Agora (or its site), and, close on the north bank, the supposed temple of Zeus Soter. The road from Karytaena, which crosses the site of the ancient city from north-west to south-east, is carried across the river by a bridge rather more than 300 yards eastward of the Thersilion, which (having reference to the usual persistence of bridge sites) we may probably assume to represent the point at which the bridge necessary to connect the two portions of the city always existed, especially as this is the narrowest point of the river within the city boundary. We do not observe mention made of any attempt to look for remains of an ancient bridge, which would be a matter of some interest, but of course this is a more difficult undertaking than trenching on dry land, and requires special means, particularly if the river is a rapid one.

We need hardly remind our readers that one principal point of interest in connexion with the researches at Megalopolis has been in regard to the bearing of the remains of the theatre on the discussions started of late years, by Dr. Dörpfeld principally, on the question of the Greek stage, or rather as to whether the Greeks had an actual stage or not. As to what has been previously said in our columns on this subject, we may refer the reader to an article on the excavations at Megalopolis in the *Builder* for June 14, 1890, and various further "Notes" of March 7, 1891 (page 185), April 18, 1891, (page 305), and April 25, 1891 (page 326). The remarks and suggestions made there are however to some extent superseded by the present fuller information in the volume before us, but they indicate some incidents of the controversy. We shall endeavour here to give some idea of how the argument now stands as far as the Megalopolis Theatre is concerned, with the fuller information and plans now before us.

The chapter dealing with the plan of the theatre is jointly signed by Professor Gardner and Mr. Loring, and contains a great deal of very careful and interesting reasoning on the facts given in the description and the plans, which however does not bring us so near to a solution of the main point as we had hoped. It is impossible to go into all the details here, but the main facts may be summarised intelligibly. We have the south wall of the Thersilion, about 230 ft. long, facing and on the central axis of the curve of the auditorium. From this wall projects a portico of fourteen Doric columns on the face, and projecting two intercolumniations from the wall (towards the theatre). In the main wall behind the colonnade are three doors symmetrically spaced, showing at all events that the Thersilion was intended to connect with the theatre. The stylobate finished in two steps, returned round the sides of the portico to the main wall. But in front of the portico, and not returned at the angles, are four more steps, the lowest a shallow half-step, leading down to the ground level, which steps are described as obviously of later date than the stylobate of the portico, being much more roughly worked and set, with different form of metal cramp and a different tooling.* These steps moreover have no solid foundation, and the masonry of the original stylobate has been cut into in inserting them. Without these steps there would be a drop of about 4 ft., more or less, to the orchestra level.† We are then, as the writers put it, confronted with the question, what was the relation of the Thersilion to the theatre *before* these steps were added: *when* were they added; and *why* were they added? This of course leads to the consideration of the relative dates of the Thersilion with its portico, and the theatre. The portico being built facing the site of the theatre, it seems manifest that the two were built together, and in relation to one another; as Messrs. Gardner and Loring point out, "it would be absurd to suppose that the Thersilion was built, without reference to any theatre, in a position exactly adapted to the addition of a theatre, by the side of a hill, and with the portico, its main entrance, turned away from the Agora‡ and facing the hill." The authors consider the date of these lower steps of the portico fixed by an inscription on a certain pedestal, which (the inscription) they say can hardly be assigned to an earlier date than the second century B.C.:

* Society for the Promotion of Hellenic Studies. Supplementary Papers: No. I. Excavations at Megalopolis, 1890-1891. By Ernest A. Gardner, William Loring, G. C. Richards, and W. J. Woodhouse. With an architectural description by R. Weir Schultz. London: Macmillan & Co.

* These are the steps which are referred to in the "Note" in *Builder*, April 18, 1891; but the perception as to the real facts in regard to them has been materially modified since then.

† The writers think that the present front row of seats of honour, or "stalls," in the auditorium, was an addition to the original auditorium seats, and that the level of the orchestra was lowered by the height of one step when this row of seats was added. This would leave the stylobate 4 ft. 6 in. above the orchestra level. This question about the added line of seats we can only note in passing, but we are disposed to think the conclusion is correct.

‡ In regard to this argument, it may be answered that the Agora is on the other side of the river. However, the distance is only about 350 yards between the two, so the Thersilion would be a conspicuous object from the Agora.

this pedestal bears marks of a special character of tooling also found on the lower steps of the portico. So that, taking the generally assumed founding of the Thersilion and the theatre along with it at 370 B.C., we have the case of a portico, manifestly having relation to the theatre, and with doors entering upon it from the Thersilion, but existing for about two centuries with a drop of over four feet from the portico level to the orchestra of the theatre. What then was the use of the doors between the Thersilion and its portico, which led out only on to the top of a sunk fence, as one may say, and to which there was no access from the ground except by an acrobatic feat?

The explanation offered is very ingenious, and may be the true one, but after all it is only conjectural, for there is not a shadow of proof for it, only the argument "how can we explain it in any other way?" The authors suggest, then, that in the earlier period there was a permanent bank or terrace of earth in front of the stylobate wall of the portico, which formed the stage, and which, though it hid the front of the stylobate wall, would nevertheless not remove the structural necessity for such a wall. There would be external steps to this terrace, both for connexion between stage and orchestra and for access to the Thersilion. At a later period the terrace was removed and a temporary wooden stage used, which would also have temporary steps; but at times when this platform was removed and not in use, steps would be required to ascend to the Thersilion portico, and were therefore added where we now find them, in a somewhat rough manner, as would be natural in the case of steps which would be covered over whenever the temporary stage was used, and which in any case were only added for a purely practical purpose.

As far as the idea of the early terrace is concerned, it must be admitted that this is a very conjectural explanation; but if this explanation is accepted, it is evident that the actors must have been *on* this terrace, and not in front of it; at all events that the height of it was not sufficient to provide the scenic background of Dr. Dörpfeld. But in regard to the idea of the later wooden and removable stage, the remains afford a confirmation of the theory. About 20 ft. in front of the stylobate of the portico there exists another line of foundation wall, on which are some of the bases of a smaller colonnade. This colonnade we may dismiss for the moment, to consider what was revealed by Dr. Dörpfeld's own acute observation of the two courses of stone which form the foundation of it. "The lower course is structurally somewhat better than the upper," and this fact alone suggested to him that the two courses were perhaps not of the same date. "On the removal of some blocks of the upper course this suspicion was found to be amply justified, for on the blocks composing the lower course was discovered a series of rectangular sinkings and of grooves clearly intended for the reception of wooden posts and planks." These appearances are carefully figured in one of the plans, and this seems a remarkable confirmation of Messrs. Gardner and Loring's idea as to the removable wooden platform. But over this course of stones pierced for wood work, and therefore later than it, was placed the course of stones which bear several bases and drums of a small colonnade. This the authors regard as the front and support of the Vitruvian stage. These columns are roughly worked, and on either side of each column is a projecting fillet, "doubtless intended to hold panels which formerly filled the inter-columniations." The shaft of one of these columns, a monolith, has been found apparently entire, and gives a minimum height of 7 ft. $8\frac{1}{4}$ in. for the front of this latest stage. This front would be high enough to act as Dr. Dörpfeld's back-scene. The authors give, however, two reasons why it could not have filled such a purpose. First, from the positions of the fillets on the sides of the columns, the front could not have been a flat surface; the columns must have projected in front of the panels. We do not see very much in this argument; such a back-scene might have been formed of half columns and panelled spaces between. But another and stronger reason against the idea is that there is no trace of a door or opening anywhere, either from a wider spacing of the columns, or from any special appearance on any part of the base-course of masonry, which must have shown a difference of appearance where any portion of it had been used as the sill of a doorway; and it is argued by the authors, and we think with truth, that it is impossible to conceive of a wall used as a scenic background for the actors, without any door entering on to the orchestra. It then follows that this latest addition in front of the Thersilion portico represents the front of the Vitruvian high stage or λογεῖον, and another argument in favour of this idea is that it was built on the base-line of masonry which had undoubtedly at a former period been the basis for a wooden stage, or for some kind of wooden erection which we can only account for by supposing it to have been a stage. The curious part of the matter is that this erection, over 7 ft. high at least (on the evidence of the monolith column), and probably 8 or 10 ft. over all, must have risen several feet above the base of the colonnade of the Thersilion portico behind it, and have shut out part of that from sight. Anything more unsightly than this it would be difficult to imagine, and one can only come to the conclusion that the desire for a stage according to the then received pattern was a sufficiently important object to override any consideration of architectural effect in regard to the older monumental portico in the rear of the stage.

The foregoing considerations are evidence in favour of the idea that when Vitruvius spoke of the proscenium he spoke of a platform upon which the actors stood, and not the front of an erection which formed a back-scene to their acting, and the probable height of this particular stage agrees pretty nearly with the height required by Vitruvius. The depth backwards to the Thersilion colonnade would indeed be much greater than is required for his description of the Greek stage; but the authors suggest that there is no necessity to suppose that the floor of this high stage extended all the distance back; that it is more probable that it was an erection in front of but not touching or interfering with the colonnade of the portico. This supposition would at least leave the colonnade complete in the rear of the new stage, though the whole of the height of the columns could not be seen from the front of "the house."

This theory as to the height and construction of this later (probably late second century B.C.) stage at Megalopolis supports the idea that Vitruvius, in his description of the Greek stage *as he knew and understood it*, did mean by "proscenium," a stage on which the actors stood, as the indications of the remains agree with that better than with any other supposition. But the discoveries at Megalopolis, and the deductions so cleverly argued from them by Messrs. Gardner and Loring, after all do not carry us further than to support the generally received idea as to what Vitruvius means by the Greek stage as he described it. They take us little or no nearer to the question, what was the actual stage of the best Greek period, and whether it was really, at that date, what Vitruvius described it in his own day. Messrs. Gardner and Loring really only take us as far as this—that a terrace in front of the Thersilion portico is a perfectly possible explanation of the relation between the Thersilion and the theatre, but is a mere conjecture with nothing else to support it; but that, on the other hand, the Megalopolis remains offer nothing whatever, so far, to support Dr. Dörpfeld's theory that the proscenium was only a background. The drop-wall beneath the Thersilion portico (before the later steps were added), facing the theatre, might seem at first sight to support this view, but then the wall is too low; it is impossible to imagine a wall at the most 4 ft. 6 in. high being accepted as a back-scene; and even if it were, whence did the actors have access to the orchestra, on which they (according to Dr. Dörpfeld) were supposed to act? So far, we think it may safely be said Megalopolis gives Dr. Dörpfeld no support at all; and the plans and sections of the remains, appended to this treatise, have been evidently carefully and conscientiously drawn, and represent all that is to be made out of the remains, unless some further excavations throw additional light on their meaning.

Professor Gardner adds in an appendix some very interesting illustrations of representations of the Greek stage on vases made in Southern Italy in the third and second centuries B.C. Some of these confirm in a striking manner the opinions expressed in regard to the Megalopolis stage. We have the simple terrace platform; the stage with steps in front or staircase at one point (not a continuous row of steps); and a front of a stage with columns or pilasters, which suggests the latest stage at Megalopolis.

Among the peculiarities in the plan of the theatre is that there is only one *parodos*, on the east side, the corresponding space on the west being occupied by a long narrow chamber on a line with the front of the stage, which has been called σκανοθήκα (scene-dock). This idea would seem to imply a greater variety of scenic background than we are used to imagine in connexion with the Greek Theatre. It looks like a store-place of some kind, but the destination supposed for it can only be regarded as a conjecture.

The Thersilion presents us with a very peculiar plan. It is an oblong interior, not very far from square, with four columns at four angles of a square near but not on the centre (nearest to the south side facing the theatre); on the east, north and west sides the space between this central compartment and the side walls is divided into five equal aisles by four rows of columns, which are not placed opposite to each other in lines normal to the side walls, but arranged so that they form lines converging towards the centre of the square compartment. On the south side this arrangement is not followed, but the columns are placed opposite those which originally stood in the wall line next the theatre.* It seems obvious from this arrangement that whatever formation took place in the hall had its centre of interest in the square space marked out by the four central columns. The others were arranged so as to afford a number of uninterrupted vistas from the sides.

Mr. Schultz's architectural description, in connexion with which the restored plan of the Thersilion is given, contains a great deal of interesting information on the architectural and structural details of the building, for which we must refer the reader to the book, which is one that every one seriously interested in ancient architecture ought to procure. Whether we agree or not with the critical views expressed in it, we cannot but recognise the care with which the investigations have been made and illustrated, and the thoughtful and logical character of the analytical discussion of the subject.

A LADDER CRAMP.—Messrs. Buckley & McCormack send us a description and illustration of an adjustable cramp for fixing ladders wherever there is a window-sill or window-head available near the top of the ladder. The cramp has a double arm with hooks which go round the sides of the ladder; the other end of the shank from which the hooks branch has a turn-down holding plate which presses against the wall on the inside of the window, and is tightened up by a screw, thus cramping wall and ladder together. By turning the cramp the reverse way up, it can be applied at the head of a window on the same principle as at the sill.

* The wall with three doors in it before spoken of, which separates the portico from the hall, was not the original arrangement; the hall was formerly open to the portico except for four columns ranging with the interior colonnade, the basements of which have been found. These did not, however, range with any of the outside columns of the portico.

A CHAPTER ON GREEK VASE-PAINTING.

DR. HARTWIG'S great work on the Meisterschalen—*i.e.*, the cylixes which are signed with artists' names, has been long expected, and will disappoint no reasonable expectation. Its publication marks a distinct epoch in the history of the study of Greek vase-paintings.* In his preface he tells us that the work is due to chance, not to a fixed plan—it has grown up bit by bit, and the original intent has been modified *ambulando*.

The initial impulse was given in 1887 by the discovery, in Rome, of a number of unpublished vases with artists' signatures, with dedication inscriptions, of which last more anon. The first idea was to publish these as a Supplement to the German Archæological *Jahrbuch*, and to regard this as a sort of completion to the Vienna *Vorlegeblätter*. Dr. Hartwig next came across the Branteghem and Bourguignon collections, both, especially the first, so rich in signed vases. To these were added later the Bruschi collection at Corneto, well-known to all archæologists, but usually inaccessible to the intending publisher, the splendid Fania collection at Orvieto, and that of Lord Northampton at Castle Asby. As the work went on it was borne in upon him that some of the finest vases left us are unsigned, and yet, by various notes of manner, may be attributed to certain masters who have left us signed works. So, bit by bit, the book developed from being, as originally intended, a corpus of actually signed vases, to be a history of individual artists, and of their mutual relations and influence, a history based on unsigned, as well as signed, work.

Here, we may as well at once say, seems to us the weak side of the work. Dr. Hartwig is perhaps unduly eager to give an artist's name to an unsigned vase. The temptation is great, but surely it would be wiser in the case of unsigned vases to be content with the simple formula, "in the style of," or "under the influence of." A potter would have in his workshop a number of subordinates. What more natural than that, especially in the early days of their apprenticeship, they should even deliberately affect their master's style? It seems even possible that with the artist's signature affixed we are not quite safe, as, if executed under his immediate supervision and issued from his factory, the head potter might very likely sign for commercial reasons, and this would account for the wretched work that sometimes appears in a vase signed by an illustrious name.

One other point, and we have done with objection. Dr. Hartwig, intent on the question of development, even discovers in some of the vase-painters two distinct periods, pre- and post-Persian (to use a Germanism), the early and the late "manner" as we should say. Here again, we are it seems to us on slippery ground. Except where dedication names give us some foothold, chronology cannot safely be pressed to such detail. There is nothing to hinder an artist from lapsing into occasional archaism, prompted sometimes by subject, sometimes from mere mood. Even the form of letters in inscriptions must not, for the same reason, be too closely pressed.

To return to the plan of Dr. Hartwig's work. In publications drawn from sources so diverse the plates are necessarily, he warns us, unequal. It is not easy always to lay hands on a competent artist in a small provincial Italian town. Some of the plates are models of perfect reproduction, and the general level is high. No chromatic reproduction is attempted, and we think wisely; it is quite easy to reconstruct in imagination the simple black and red. The vases are all reproduced in the original size, a matter of great importance. Inscriptions are given in small letters. This also is a sensible innovation, as half-facsimile is only misleading. The shape of the vase is only added when it is of scientific importance.

As to the limits of the book, they are strict. Dr. Hartwig confines himself to the "Blüthezeit"—the fine period—that is, Euphronios and his set, with Chachrylion as forerunner. He holds out hopes that another volume will deal with Epiktetos and his set, who preceded Euphronios, and we may hope he will then include the black-figured masters who signed their work. For the present, Epiktetos has to be content with a valuable chapter on his relation to his successors.

As regards his attitude towards his subject, Dr. Hartwig approaches it from the art-critic's point of view; the mythologist learns nothing, the question of interpretation is hardly touched on, and when it does come up is dealt with entirely from the point of view of the development of the same type by different masters. The author hopes his book will be consulted by artists, who, as a rule, know but little of the beauties of Greek ceramography. The introduction deals with the question of the dating of vases. Blunders as odd as protracted have been made about this. Greek vases started under a cloud, as Etruscan. Long after the "Etruscan" fallacy died, its baneful effects lived on in a certain depreciatory attitude of mind towards these vases, as curious and strange rather than beautiful objects. The elegance of their shape was approved, but the work of the greatest masters in decoration was stamped by archæological judgment as archaic. The florid and tasteless productions of fifty years later have the prominent place in the glass cases of the period. A curious fallacy prevailed that these vases of the best period, supposed, though wrongly, to be contemporary with Pheidias, being mere handicraft, lagged far behind the development of plastic art.

All this is now, of course, matter of dead and gone criticism. We know now that the finest things in Greek vase-paintings, the fullest development of the red-figured style, was a thing accomplished many years before the date of the Parthenon marbles. The odd thing is how we came *not* to know this as long ago as 1835. In that year Ludwig Ross, making tentative excavations in the Acropolis, to the south of the Parthenon, came upon a layer of partially-burnt *débris*, which he had no hesitation in declaring marked the period of Persian invasion. Among this Persian *débris* was the fragment of a plate in the finest red-figured style; a style which he rightly concluded must have been fully developed before the Persian invasion. His discovery, conclusive as it was, fell practically dead. Subjective critics were taken with the notion that the outburst of patriotism after the Persian war, the impulse given to national life, found its expression in the greater freedom of the red-figured style, a sentiment easy to work up rhetorically, but foolish enough when critically considered. This error landed us in another perhaps more troublesome. Dating the red-figured style as contemporary with Polygnotus we were set hunting for his influence; was his *ethos* discernible in this or that vase executed, as the new chronology teaches us, before Polygnotus was thought of? So too with the influence of the drama, we were fifty years wrong all along the line. It needed the recent excavations of the Acropolis to put an end to the mistake that Ross had barely suggested. These excavations show that vases in the style of Brugos and Hieron, and a portion of those by Euphronios Duris, and yet more of Epiktetos, were executed before the Persians set foot in Athens. In 480 B.C. the red-figured workers had already done some of their best work. This meant that Euphronios, the best and first of them, must have been at work about 500 B.C.

The next important question of doubt is that which deals with what the Germans call "Lieblungsnamen," a mistaken term already creeping into English usage in the form of "love-names." We prefer the term "dedication names." For a strictly limited period of time, of the late black-figured and early red-figured technique, the custom obtained that the potter should inscribe on his vase the name of some popular favourite, usually a youth, with the adjunct "is beautiful." "Leagros is beautiful," "Memnon is beautiful"—or the blank formula, "the boy is beautiful"; sometimes, though very rarely, "the girl is beautiful." "For a good boy," on the mugs of our childhood, offers a certain analogy; but with the Greeks the notion is of celebration, not reward, and beauty takes the place of moral excellence. In the early part of the sixteenth century of Italy we find analogous inscriptions—"Lucrezia bella," "Angelica diva"—but the persons toasted are always women. The term "love-names" is based on the groundless assumption that in ὁ παις καλος we have a note of the Dorian relation of lover and loved. Say we have the echo of that note, that is the most. Leagros, Glaukon, and the like, who are toasted in these cups, are the noble patrons, not the obscure παιδικὰ of the handicraftsman. It is hard to get the exact shade of meaning. "Dedication" is certainly too solemn; it savours of the sanctuary. "Toast" is too exclusively of the banquet, and, besides, too personal. We also want some hint of the commercial shrewdness involved, as in our "Gladstone bag"—for the wealthy youth was the vase painters' best patron.

The case for the chronology of these "dedication names" is put very clearly. We cannot even resume the details of the argument. Relying on the fact that the boy, even in the larger Greek acceptation of the word as youth, could only so count for about ten years, Dr. Hartwig concludes:—

1. All vases inscribed with the same "love name" by the same artist must be within a period of ten years of his activity.

2. All vases inscribed with the same love-name and by different masters must, in like fashion, be within the same period.

3. The appearance of two different love-names on the same vase justifies us in concluding that the persons named were within about ten years of each other's age.

The value of these three dicta for the closer dating of vases is apparent.

We can only draw attention to the main subject of Chapter VIII., in which the vexed question of the meaning of "catagrapha" is dealt with, and the relation of Kimon of Kleonæ and his innovations to vase painting fully discussed. Dr. Hartwig is here at issue with most other authorities, and notably with Studinczka, who held that the painters of the set of Epiktetos reflect the innovations of Kimon. Dr. Hartwig thinks we must look to Euphronios for that which is in theory perspective, in practice foreshortening, of which Kimon was the first to master the principles, and which the critics called the drawing of "catagrapha."

It is in the criticism of detail, the knowledge that comes of careful personal examination and appreciation, that Dr. Hartwig shines. We can only note his rather startling, but, we think, satisfactory theory about the recently rediscovered Troilos vase at Perugia. It is signed "Euphronios made," and as this is the master's usual signature, it has usually been supposed that Euphronios painted it. Dr. Hartwig takes it away from Euphronios and gives it to an artist whom he has almost called into being, Onesinios. In similar fashion he takes away the Eos and and Kephalos vase signed by Hieron and gives it to an artist whom he calls quaintly enough "the master with the bald head" (from his figures, not himself). This should delight the realists. For sheer beauty there are few things like the newly-published vase from the Cabinet de Médailles, which he attributes to Brygos.

* "Die Griechischen Meisterschalen der Blüthezeit des Strengen Rothfigurigen Stiles." Paul Hartwig. Text 680 Seiten. 4to. Mit Atlas (75 Lichtdrucktafeln Gross-Folio).

REREDOS, ST. MARY'S CHURCH, STREATLEY.—A memorial reredos in polished white alabaster, elaborately carved and sculptured, has recently been erected in St. Mary's Church, Streatley-on-Thames, from the design of Mr. J. L. Pearson. The work has been carried out by Mr. N. Hitch, of Vauxhall.

NOTES.

THE Parliamentary Committee which is inquiring into the working of the Railway and Canal Traffic Act has completed the first stage of its labours, and commences the examination of railway witnesses this week. The representatives of the traders and the public all tell of great advances imposed at the commencement of the year—subsequently modified in the majority of cases as a result of the general agitation. In many instances, however, the position is still very unsatisfactory. As a Scotch witness put it, there has been a great deal of appearance of concession, but the result has not equalled the appearance. This, it is to be feared, applies principally where there is lack of organisation, as in the case of agriculturists, small traders, and private individuals. Fortunately, the County Councils presented a good medium for many of these to submit their grievances, nor were members of Parliament behindhand in rendering assistance when desired. A representative of the Swansea Traders' Association alluded to the question of the charges made by railway companies for services rendered at private sidings, and stated that he found it impossible to obtain any particulars from them as to the services included in their charges. There should now be no difficulty in getting the companies to define precisely what they do in the way of terminal and additional services, and this is not the least important of the various questions for the committee to consider. As to future cases of dispute, several witnesses express the opinion that the procedure under the conciliation clause, with something added, would be most effective. It is unanimously agreed that the Railway Commission is far too costly, and there are but few advocates for another brand-new tribunal.

THE outlook in the coal trade — any serious disturbance to which soon affects many other industries—is growing very ominous, and a stoppage appears inevitable. Neither side, however, are fully united as to the policy to be pursued—a fact which will doubtless affect the duration of the coming struggle. A few of the masters have not yet given notice of reduction, while the Durham miners—who have had a bitter experience of strikes—have determined to secede from the Federation rather than run the risk of being ordered to strike again. Some of the lodges in the same county and in Northumberland decided to stand by the Federation in resisting the proposed reduction, and to demand an advance for themselves in addition. The general result of the voting, however, is against coming out—the majority in favour of this course being three to one. The attitude of Scotland and Wales may be characterised as "watchful" — fluctuating between sympathy and self-interest. The reduction demanded by the coal owners is undoubtedly a very sweeping one. They justify it by pointing to the advances granted within the past four or five years, in the light of which a 25 per cent. reduction certainly does not appear so exorbitant. Wages began to go up in October, 1888, with an advance of 10 per cent.; since which date five further advances have been obtained by the men—two more of 10 per cent. and three of 5 per cent. The last advance was in August, 1890, and prices having receded considerably since that date, there is no doubt that little or no profit is being made at the present time. The coal-owners appear to have put off the evil day so long that a reduction of 5 or 10 per cent. will not now meet the case; but the 25 per cent. which they are seeking to enforce is more than any body of men can be expected to concede without a struggle. A solution of the difficulty may perhaps be found in "reduction by instalments," although the attitude of those branches of the Miners' Federation which have already voted upon the question is one of resistance to any reduction whatever. It is hardly likely that either side will maintain for long the position taken up at the outset, and it is to be hoped that past experience, and a careful consideration of existing circumstances will help to obviate a prolonged struggle.

ON Monday night London was the scene of a serious fire, such as we only expect to hear of from some jerry-built American or antediluvian Russian harbour town. A large number of well-stocked warehouses in St. Mary Axe were entirely destroyed, and many others much damaged. The actual cause of this conflagration is not yet known, but it is fairly certain that its extension was primarily due to the non-division into risks of the first warehouse attacked, then to the bad construction and crowded position of the neighbouring buildings, and further to the organisation and strength of our fire brigade not permitting of an adequate attendance of appliances and men at once, on a first alarm, to so dangerous a district. Speaking of the latter it appears inconceivable why so fine a body of men should be continually handicapped by defective organisation and irrational means of inter-communication. The seconds alone lost with the separate telephonic communication to each individual station mount up, and the average two minutes' night "alarm" is nearly treble what a perfect institution should aspire to. As usual, the large conflagration did not come alone; another serious one in the Brompton-road, and one at Aldgate, occurring about the same time, thus again giving London a night this summer in which it had three heavy fires, each insufficiently attended, and scarcely an engine left at home to protect the rest of the metropolitan area. In each case the consequences of the three outbreaks were nearly as bad as they could have been.

MANY sagacious men of business have before this predicted that the recent Parliamentary struggle over the Manchester, Sheffield, and Lincolnshire Railway Company's Bill for a main line to London was money thrown away, because it would not be desirable to raise the capital for the undertaking. It appears very much as if this would be the case. For the Board in their half-yearly report say that "negotiations have been entered into with regard to the raising of the necessary capital for the construction of the new line to London, but owing to the unsettled state of the money market the question has for the present been deferred." At a time like the present sound home undertakings are much in favour, and we cannot but regard the above quotation as showing that financiers do not consider that the capital can be raised for the new line. The Board of the Metropolitan Railway have over and over again assured the shareholders of that company that the Aylesbury extension would be a success when the main line from the North was completed. At present the construction of this main line appears to be a thing of "the dim and distant future."

THERE appears to exist a sharp conflict of opinion between the Sanitary Authority for Rickmansworth and the neighbourhood, and the Medical Officer of Health who has reported so unfavourably of the sanitary state of the district that the attention of the Local Government Board has been drawn to the subject. The medical officer considers that a scheme of sewering and drainage is necessary, but the Sanitary Authority is satisfied with the present state of things. It is clear, however, that a body of amateurs cannot properly set up an opinion against a medical expert, and if they have reason to believe that the views of this officer are either wrong or impracticable the opinion of an impartial expert in sanitary matters should be taken. The increase in the size of Watford, Harrow, Pinner, and Northwood during the last few years has been very marked, and it is obviously the duty of the Local Government Board to take care that the sanitary condition of Rickmansworth, which belongs to this group of semi-suburban localities, is kept up to a proper standard. Hitherto Rickmansworth has been remarkable for the filthy condition of its highways in winter and their dustiness in summer, and if its sanitary condition is also condemned by experts it is high time that proper remedies were sought for.

WEDNESDAY, the 12th, will be remembered as the first really wet day of the season. However, members of the Archæological Institute were fairly well under cover in the morning at Westminster Abbey and Lambeth Palace, as reported elsewhere. The evening was devoted to a reception on the invitation of the Lord Mayor and Mayoress at the Mansion House. Invitations to meet the Congress party had been issued to the members of various antiquarian societies, which were accepted in no small numbers. We noticed in consequence a large gathering of archæologists from all parts of the country, especially from Kent and Surrey. The guests and their friends were received by the Lord Mayor and the Lady Mayoress at nine o'clock, and they then proceeded to examine an important collection of municipal insignia of antiquarian interest. Maces of various English corporations, swords of state, caps of maintenance, silver oars, mayoral and other chains of office, were arranged in a long line of glass cases from one end of the Egyptian Hall to the other, and also in the Western Parlour. Of these, the most important object was the celebrated crystal sceptre of the City of London. While other objects had their observers, a small crowd of sightseers awaited their turn to inspect this unique article. The gold mounts and pearls may be of Saxon date, but the gold head and its rubies and sapphires is obviously much later. By its side and around it was the City Purse—all too small for modern use—the Lord Mayor's collar of SS bequeathed by Sir John Alen in 1545, the various swords of state, the ward maces, thirty in number, &c. The maces of the English cities and towns were arranged chronologically, by the care of Mr. St. John Hope and Dr. Freshfield, a task that must have been lessened in its labour from a similar gathering having been made at Burlington House by Mr. Hope some months ago. The early maces were represented by the small and curious fifteenth-century examples from the towns of Winchcombe, Hedon, Grantham, and Stratford-on-Avon; the latest, by those of Shrewsbury, Wolverhampton, and Cambridge. Here was also the great silver oar of the Admiralty of the Cinque Ports and many others. The Burghmote horns exhibited were curious, many being of early date. Among them was the wakeman's horn from Ripon, together with the bawdrick, with its well-known and curious silver badges, now worn by the Serjeant-at-Mace. It is to be regretted that this remarkable collection was such a short time on view. During the evening the Mediæval Musical Society rendered a selection of quaint old music, and music played on the harpsichord and viols was also given. It is to be hoped that these concerts may be repeated on some future occasions.

AN interesting exhibition has been held during the present week at 83, Eccleston-square (by permission of the Marquis of Bute), consisting of drawings in water-colour, photographs, and fragments discovered at the tombs of Beni Hasan, El Bersheh, Tel-el-Amarna, Sheikh Said, and Der-el-Gebrawi, executed for the Archæological Survey of Egypt by Messrs. Percy Buckman, W. M. Blackden, John E. Newberry, and Howard Carter. The chief drawings in the collection are a series of

full-size water-colours of the wall paintings from the tombs at Beni Hasan. Many of these have figure subjects, treated in the conventional manner of the period, but exhibiting a considerable knowledge of anatomy and the power to depict objects in motion. Single figures holding various objects, groups playing games, and figures of priests are amongst the number. Other drawings exhibit various kinds of animals and birds, notably a large variety of duck, some of which are excellent examples of decorative treatment. Two curious specimens of dogs and a cat are also given. A group of wrestlers bears a striking resemblance to some of the casts made of those who fell at the overwhelming of Pompeii, preserved in the Museum there and at Naples. The lotus, of course, plays a prominent part in the decorations; a particularly happy example is its use as a head-dress on the figure of the daughter of Tahutihotap at El Bersheh. There is a curious representation of salting fish from a tomb wall painting at Der-el-Gebrawi. Besides these reproductions of wall paintings are a number of water colours illustrating the country in the immediate neighbourhood. These are mostly by Mr. Percy Buckman. Amongst the most striking are two views of the Plain of Tel-el-Armana, and a view across the Nile Valley at Der-el-Gebrawi. There are also several fragments of wall showing decoration, the figures and other sculpture being in very low relief. Also specimens of scarabs, part of a ball, and other objects of blue glaze of a very beautiful colour, with patterns in black, from Der-el-Bahari. The result of the explorations in the first fourteen of the tombs at Beni Hasan (there are thirty-nine tombs in all) has been written by Mr. Percy E. Newberry for the "Archæological Survey," and published by Messrs. Kegan Paul & Co., and will prove interesting to all those interested in Egyptian research. It is very freely illustrated with plans of the tombs and *fac-similes* of the wall painting reduced from full-size drawings and tracings.

THE Japan Society, which brought its second session to a close on Wednesday evening, and its tenth ordinary meeting, was supported by a large number of members and guests. An interesting and instructive paper on "Wood and its application to Japanese Artistic and Industrial Design," was read by Mr. George Cawley, M.Inst.M.E., late of the Imperial Engineering College, Tokio. The subject was a particularly interesting one, and the interest was increased by various demonstrations during the lecture of the English and Japanese methods of performing similar simple operations of carpentry and joinery. Mr. Mizutani Takichi, a Daiku master carpenter and joiner, showed the Eastern methods, and his picturesque native dress and Oriental attitudes and tools attracted the closest attention from the audience. The English methods were demonstrated in a similar manner by an English joiner. Numerous examples of the artistic products of Japan were shown, and to the South Kensington authorities the audience were indebted for a very valuable collection of Japanese wood-working tools; these tools were used during the evening, as the native craftsman had lost the whole of his native kit in a recent fire. For this reason the native workman deserved some allowance, as the tools of the loan collection were in an indifferent condition, and no time had been available for bringing them into good order. This, however, gave the opportunity of demonstrating what the lecturer also referred to, that the superb workmanship of the Japanese, with its delicacy and admirable accuracy and artistic perception, is produced with tools primitive in their construction and finish. Mr. Cawley confined his remarks principally to the native woods and tools, and with reference to the former called attention to the vast importance of the study of forestry in a country such as Japan, where the buildings, with few exceptions, have been built of wood. The specimens of native woods that were shown to the audience gave a good idea of the wealth of the Japanese in this respect, and their workmanship was represented by some really beautiful specimens of inlaid work and cabinets. The tools that received most attention were the saw, plane, adze, and boring-tools. The Japanese saw is made with very pronounced teeth, and is used in tension instead of compression, the cutting being done as the tool is drawn back, the English method being the reverse. The Japanese stands on a platform to use the saw, and his foot holds the wood in position. The plane is also different from ours, as the back iron is entirely absent, and the long trying-plane upon which we depend for accurate joints and surfaces is represented in Japan by a piece of thin wood about 18 in. long. The boring tools are also most interesting. The pressure is applied by holding a long wooden handle between the open palms, and thus applying pressure and rotary motion. This is done by English workmen by the centre-bit, which gives greater force, but less skill is required in its application. To sum up the conclusions of the lecture, it may be stated that the crude tools of the Japanese cannot be compared with English tools, and that the Japanese work is somewhat more decorative than constructive, but the skill of the Japanese in their delicate finish and accuracy, and artistic perception, is far beyond that of English workmen. The remarks of a member of the Society at the conclusion of the lecture called attention to the introduction of machinery into Japan and its consequent deteriorating influence on the decorative and artistic qualities of native production. The feudal conditions which existed during long ages no doubt led to much of the artistic work for which Japan is so noted, and there is a distinct analogy between the conditions of the best art work of England and Japan. It is, however, doomed to disappear with the introduction of machinery and the employment of the native workmen to produce articles for the European market.

THE most interesting paper in the new number of the German *Mitheilungen* (1893, 1) is that by Dr. C. Robert on the Sanctuary of Eileithyia at Olympia. It was known from Pausanias that in this sanctuary (P. vi., 20, 2) not only Eileithyia but the mysterious "daimon" Sosipolis, saviour of the city, were worshipped. Who precisely this Sosipolis was has remained a puzzle, nor was the site of the sanctuary definitely fixed, though it was known that it lay somewhere between the slope of the hill Kronion and the Treasure houses. Dr. Robert solves both problems. The German excavators, in digging round the Exedra of Herodes Atticus laid bare to the east of the building, *i.e.*, just at the point described by Pausanias between the hill slope and the Treasure houses a very ancient structure. It has hitherto gone by the name of the building behind the Exedra. The *cella* of this building, which is almost square, has its back wall actually leaning against the slope of the hill. The inner part of the wall is carefully worked, but the outside left absolutely in the rough—never intended to be seen. The *pronaos* was of wood on a stone foundation; in the *cella* is the basis of a square altar; the entrance is only large enough for one person. These arrangements just suit the ritual of Sosipolis. He was worshipped with libations and incense. No wine was allowed, which marks the early character of the cult. Honey-cakes were offered to him in his sanctuary. The interesting point is that Dr. Robert makes out by mythological arguments we cannot enumerate here that Sosipolis was no other than the infant Zeus, as worshipped in the cave at Crete. So that we have in the Eileithyia sanctuary practically the earliest shrine of the great Olympian Zeus.

ACCORDING to our contemporary the *Antiquary* the entrance gateway of Westbury College, near Bristol, is threatened with destruction, the site having been sold, and plans for twenty small houses made. Mr. John Taylor, the historian of Bristol, mentions that the church, and a tower in the garden to which a modern house is joined, are the sole remains of the ancient collegiate foundation at Westbury-on-Trym, whereof John Trevisa was a canon, and wherein Wycliff held the prebend of Aust. In or about 824 the monastery was confirmed to Herbert, Bishop of Worcester, as against the Berkeleys. Bishop Oswald established therein, *circa* 980, twelve Benedictine monks he brought from Fleury, in Normandy. Carpenter, elected to the see in 1448, rebuilt and enlarged the college and church, in conjunction with William Canning, who, after his wife's death, took orders and was appointed dean. On the restoration of the church in 1853 they found a crypt below the chancel, and in the south wall of the crypt an arched recess containing a dismantled sepulchre, which was believed to be Carpenter's place of burial. The walls of the recess were painted, in distemper, with a funeral procession passing through a city-gate, and the word "Worcetta" could be deciphered. It is known that Carpenter, who died at Westbury, decided he and his successors should be styled Bishops of Worcester and Westbury. At the Dissolution the manor, which Offa, King of Mercia, had conveyed in a council held at Clovesho to Æthelmund, passed to Sir Ralph Sadler, Governor of Tutbury, when Mary, Queen of Scots, was imprisoned there. In July, 1643, Prince Rupert, marching from Oxford to Bristol, fixed his quarters at the college.

SITTING in the vestry of Greenwich parish church on Saturday last, Mr. Dibdin, Chancellor of the Diocese of Rochester, granted a faculty for the laying out as a garden under the Open Spaces Acts 1877-90 of the churchyard of St. Mary Magdalen's parish church, Woolwich; which was closed by Order in Council, 1853. The church was built in 1726-9 of brick with stone dressings, and with an interior of the Ionic order. Mr. Dibdin did not feel able, though, as reported, he reluctantly refused, to issue a faculty for the erection of a new mortuary within the ground upon the old foundations, whereof a portion remains and are used as a shed and a urinal. He based his judgment upon the terms of the Disused Burial Grounds Act, 1884 (47 and 48 Vict., c. 72), which enacts that it shall not be lawful "to erect any building upon any disused burial-ground," with certain exceptions that do not apply to the case under review; and the terms of the Open Spaces Act, 1887 (50 and 51 Vict., c. 32), which extends that prohibition to "any temporary or movable building." In view of evidence given by Mr. A. C. Reed, clerk to the Woolwich Local Board, he felt bound to regard the proposal as one, in effect, for a re-building; although, in his own private opinion, an exception might well be made for mortuaries as not open to objection on the score of sanitary danger or of desecration. He thought, however, it was a point of considerable importance, inasmuch as local authorities are now bound to provide mortuaries, and that the opinion of the Court of Appeal might well be taken thereon, or steps be taken to secure, by statute, an exemption of the kind he suggested.

THE many professional friends of Mr. T. MacLaren, who went out to Colorado some little time ago on account of his health, will be pleased to hear that he and his drawings have been apparently made much of among the younger architects of Denver (Colorado), and that the Denver Architectural Sketching Club has held a special exhibition of Mr. MacLaren's drawings, with a catalogue

in which reproductions of five of the drawings are given.

AT the Fine Art Society's Rooms is a very interesting collection of water-colour drawings made in Japan by Mr. Alfred Parsons, and which give a vivid idea of the colouring of the country. Among specially good ones we may mention "An Iris Pond near Osaka" (13) "A Pink Weed" (31), making the whole flat landscape of a pink colour; "Among the Nikko Cryptomerias—the Red Lacquer Bridge in the Distance" (57)—the red lacquer bridge a most characteristic local incident; "Ripe Rice" (63) giving a fine view of the great Japanese mountain; "The Lotus Ponds of Kakamura Hachiman" (66), a study of a flower which Mr. Parsons declares to be one of the most difficult of all to paint, changing its lines with every breeze and its colour with every cloud; "Fusijan from the Shore near Katase" (94); "Autumn Grass on the Hakone Hills" (98). In the same galleries are the original drawings of Mr. Hugh Thomson's illustrations to the "Ballad of Beau Brocade"; admirable examples of line drawing (except some of the horses), and a very curious attempt to realise the probable manner and appearance of middle and lower class Englishmen in that age of heavy feeding and drinking; the types are possibly a little exaggerated, but in the main probably nearer the truth than most illustrators have come.

THE LONDON CONGRESS OF THE ROYAL ARCHÆOLOGICAL INSTITUTE.

IT was a wise determination of the Council of the Royal Archæological Institute to hold the annual congress this year in London rather than in Ireland, as was originally proposed. The Lord Mayor of London has been for many years a member of the society, and we understand that the opportunity of holding the meeting in the metropolis during his year of office had some weight in the decision. The result has probably exceeded the most sanguine expectations of the promoters, for the Congress has been a great success. Not only have the numbers been in excess of what has hitherto been noticed year by year, but the objects brought together for inspection and the official welcome have been all that could be desired.

The members and their friends assembled at the Guildhall on Tuesday morning, the 11th, when they were received by the Lord Mayor, who welcomed them to the City. He was followed by Lord Dillon, the President of the Institute, who briefly sketched out the work before the meeting, and referred to the former Congress held in London in 1866. The Comte de Marsy, President of the Société Française d'Archéologie, who, with some members of that society, are now in England, made some remarks, thanking the English antiquaries for the welcome rendered to them, after which the party adjourned to luncheon at the Manchester Hotel.

In the afternoon a visit was paid to the Church of St. Bartholomew-the-Great, Smithfield, which was found in a very different condition than when it was inspected during the former Congress.

Mr. Aston Webb, the architect who has transformed the church into its present condition from its former state of dilapidation, if not ruin, described the works which he had carried out, his object having been to preserve every portion of the ancient fabric.

The Lady Chapel,* which still awaits restoration, was carefully inspected, and much regret was expressed by the members that the work is at a standstill for want of funds, all available means having been for the present exhausted in the purchase of the building, which, as is well known, was until recent years separated from the church and used as a fringe factory. The remains of the recently-discovered crypt were inspected, as well as the condition of the building permitted.

A visit was then paid to the Charterhouse, where the party were received by Canon Elwyn, who welcomed them to inspect the various buildings. Mr. Micklethwaite, F.S.A., gave a short lecture on the arrangements of a Carthusian monastery, illustrating his remarks by a plan of Mount Grace, in Yorkshire, where the system of the inmates, each living in a separate cell or house, was similar to what existed here. The original plan of the buildings can be traced, but the monastic features have been interfered with to a considerable extent by Sutton's great foundation. The present fabric and its fine hall and roof were inspected, the chaplain pointing out their principal features.

In the evening a *conversazione* was held at the Guildhall, which has already been referred to*.

On Wednesday, the 12th, a visit was paid to Lambeth Palace, where in the chapel, restored a few years since, the Archbishop of Canterbury welcomed the party, and rendered an interesting description of the Chapel, which, although of earlier date than the thirteenth century portion of the Temple Church, is singularly like it in the arrangement of the lancet windows. The crypt beneath it was nor inspected, at least, by the whole of the party.

On reaching the great hall, the Archbishop briefly referred to its use as the banqueting hall of the Palace, and of its being rebuilt by Archbishop Juxon after the Civil Wars, when the old hall was almost entirely destroyed. The well-known roof is framed on the hammer-beam principle of fifteenth and sixteenth century work. Here Mr. Kershaw, F.S.A., the librarian, had laid out for inspection some of the most remarkable of the MSS. and books of the Lambeth Library, which were examined with much interest, thanks to the capital system with which they were placed before the visitors.

Progress was then made across the Thames to Westminster Abbey. In anticipation of the visit, a lecture had been given on the preceding evening, at the commencement of the work of the Antiquarian Section, during the *conversazione*, when a paper was read by Mr. Micklethwaite on the growth of Westminster Abbey and the monastic buildings. It was illustrated by some diagrams and plans to a large scale, which showed the commencement of the rebuilding of Edward the Confessor's church two hundred years after its erection, and the progress of the work westward, until it came to a stop for many years in the centre of the nave. At length, in the fifteenth century, the work was carried to the west end. The towers were then left to be erected by Sir Christopher Wren. On entering the building, Mr. Micklethwaite led the party around it, repeating the above familiar story of the rebuilding of the church, which his hearers from a distance were well prepared to follow from the diagrams of the previous evening. Two of the most curious remains of the Confessor's church are the bases of the piers on each side of the Presbytery, discovered by Sir Gilbert Scott beneath the tessellated pavement of thirteenth-century work, and although they can be inspected by raising the aperture in the floor, yet it was impossible for them to be inspected by so large a party. The lecturer, therefore, acted wisely by exhibiting on the previous evening a drawing to a large scale, of one of the piers in question. Their existence shows that the former church was narrower than the present one, but that the axis was the same. The thirteenth-century Italian mosaic work in the various pavements and in the shrine of St. Edward the Confessor was inspected, but the tombs of the sovereigns of England and the elaborate work of Henry VII.'s Chapel came in for too short notice.

Luncheon was partaken of in the neighbouring Westminster Palace Hotel, a well-chosen position for much-needed refreshment, since the threatening elements were likely to mar the pleasure of journeying far in the open air, and it was close to the Jerusalem Chamber. In the latter building, later in the afternoon, an unusual spectacle was prepared for the party.

By special leave of the Queen, the robes used at Her Majesty's coronation were on view. In presence of his audience, Dr. Wickham Legg, F.S.A., not only clothed a dummy figure with the robes one by one, but he read a paper of considerable historical importance on the ceremony of the coronation of the Kings of England. By the aid of the figure, the arrangement of the various robes was made clear to the visitors in a graphic manner, the French guests especially taking a lively interest in the proceedings, part of the paper being translated for their benefit by Dr. Vertue, the Bishop of Portsmouth. In the outer apartment were arranged on figures the copes used by the Westminster clergy at Royal coronations, but they are of no great antiquity.

The members and their friends then proceeded to examine the Cloisters, Chapter House, and all the other well-known buildings of the Abbey, many making more than a passing glance at Westminster School and Ashburnham House.

In the evening the party was received at the Mansion House, as noted elsewhere, the members finding at the close of the meeting a disagreeable change in the weather, and many had to leave in a heavy downpour of rain.

The morning of Thursday, the 13th, was devoted to a visit to St. Paul's Cathedral, where it was arranged for the Rev. L. Gilbertson to conduct the party over the building. After luncheon, progress was made to the Tower of London, which was inspected, and the features of its restored condition noted, the Armoury attracting a lengthy examination, while the regalia came in for proper attention. All the objects were described by various members of the party. In the evening, the rooms of the Royal Society were placed at the service of the members, and here they assembled in lessened numbers after a fatiguing day's proceedings to hear a paper of interest on the "Origin of Mayoralties," by Mr. J. H. Round, read as an opening of the Historical Section. A paper was also prepared by the Rev. Dr. Cox, on the "Visit to London of Sir Miles Stapleton, of Carlton Hall, Yorkshire, in the latter part of the seventeenth century."

Friday, the 14th, was set apart for a visit to Hampton Court. Fortunately no rain fell, but the day appeared gloomy after the brilliant sunshine of recent times. However, the party were prepared to inspect all that was brought before them; and under the guidance of Mr. Ernest Law, whose recent work on the Palace is so well known, and others, they were conducted over the interesting pile of buildings; the pictures, the tapestries, and the earliest part of the Palace being examined with interest. On the return to London, later in the day, a meeting was held in the rooms of the Society of Antiquaries, Burlington House, kindly placed at the disposal of the Institute by that Society. A paper on Ironwork in London was announced for reading, prepared by Mr. Longden. The second paper was one of more than unusual interest to the student of Comparative Archæology. It was in French: "Sur les Vallums de la Doubroudja," by M. Toldesco, Director of the National Museum of Antiquities at Bucharest. The paper is perhaps the most complete that has yet been laid before any Antiquarian Society in the west of Europe, and it entered into ample details of the remarkable line of defences and demarcation of Roman date. It was illustrated by a great many ground plans to a small scale, too small for inspection from a distance. A drawing, showing a restoration of the earthworks and wall where the latter was of masonry, indicated the stone wall strengthened on the inner side and also on the outer one by a ditch and bank, that on the interior having a passage-way between it and the wall raised with the excavated earth, so that the defenders were elevated to an easy height in relation to the wall, the stone wall being the parapet of defence. Some small battlements were shown on the restoration, so small as to suggest weakness rather than strength, since they would have afforded an easy means of support to the grappling apparatus of any scaling party from the exterior. The restoration is hardly likely to be exact in this respect. There were many supporting stations, plans of which were exhibited, showing the results of recent researches. They are rectangular in form and of varying size. The details of this important barrier are of considerable interest to English and Scotch antiquaries, since they can be compared with the construction of the Antonine Wall in Scotland and the Great Wall from the Tyne to Bo'ness in the North of England, to which works there is great similarity, indicating that there was a central directing power in relation to these works, and also with respect to the great German *limes*.

Early on Saturday morning, the 15th, the rooms of the Society of Antiquaries were again at the disposal of the Congress, and were speedily filled by the members, who assembled to hear a description of the excavations at the Roman City at Silchester, by Mr. G. E. Fox, F.S.A., who has done so much to disinter the remains from the accumulated earth of centuries. Aided by a series of admirable diagrams, the work of discovery was reported, the most recent finds being described in detail. Afterwards, the annual meeting of the Institute was held, to which members only were invited to attend. Later in the afternoon a visit to Eton College was arranged for, under the direction of Mr. J. W. Clark, F.S.A.

Monday, the 17th, was set apart for an inspection of a group of the churches of the City of London, those built from the designs of Sir Christopher Wren being purposely selected. The sun shone out brilliantly, after the accustomed manner, different from its absence or almost entire absence, during the earlier days of the Congress. The party presented an unusual appearance as

* See page 43, *ante*.

they took their course through either out-of-the way streets of the Metropolis, or as they crossed some of the busy thoroughfares which separated them from the objects of their quest. The churches selected for examination were as follow: St. Mary, Aldermary—where, however, there is much ancient work, including the fine tower, which was a new building when the great Fire of 1666, destroyed the church to which it was attached, and the restoration of a few years since, revealed the fact that much of the walling also is ancient, including almost the whole of the vestry; Wren's plaster imitation groinings give a good idea of his Gothic work—poor in detail, but good in general effect; St. Stephen's Walbrook, where Wren's genius has produced an interior so well known as one of his best works; St. Margaret's, Lothbury, where the exterior does not afford much subject for commendation. St. Peter, upon Cornhill, where there is a plain exterior and a simple brick tower with a leaded spire, and an interior much more worthy of inspection; one of the two chancel screens existing in the City being here, although the open character of the design, and the absence of doors of separation, and emblems, renders it a very different composition than the screens of many modern churches. Indeed, the absence of crosses and other modern features of design are conspicuous in all Sir Christopher Wren's churches, although no visitor can enter one of these buildings without being at once impressed with the knowledge that he is within a building set apart for Divine Worship. St. Mary Abchurch, with its poor brick exterior; and as a pendant to Wren's work, the impressive Church of St. Mary Woolnoth, erected by Hawksmoor. The selection is hardly the best that could have been made, and it is curious that St. Michael Paternoster, or St. James, Garlick Hythe, or St. Mildred's, Bread-street, all close at hand, should have been omitted in preference for the others. But still, the arrangement to inspect any of the churches of later date than the Great Fire, rather than the Gothic churches which escaped it, which are so constantly selected by antiquarian societies for visiting, was a new idea, and the visitors may in consequence be assisted to recognise that the genius of an architect rather than the choice of style is the more important element for the design of a fitting fabric for a church.

Later in the afternoon the party was to proceed to the Guildhall, to the Historical Section, to hear a paper by Mr. G. Scharf, C.B., F.S.A., on the "Portraits of the Judges in the Guildhall." It will be remembered that Mr. Scharf contributed an important paper on the Royal pictures which were once at Whitehall and in other palaces, at the Congress held by the Institute in London twenty-seven years ago.

The order of visit to the various churches is given as set forth in the programme, but this was slightly varied in order to pay a visit to the ancient Church of St. Helen, Bishopsgate, but which could not be effected.

In the evening the members and their friends assembled in the Hall of the Merchant Taylors' Company, Threadneedle-street, at a reception given by the London and Middlesex Archæological Society. Here a fine collection of plate belonging to the various City companies had been arranged for inspection, including beadles' staves and a fair amount of church plate. Among the company were many members of the City Corporation and the various companies, the Lord Mayor, &c.

The Temple Church was visited on Tuesday, the 18th, when the round portion, the gallery containing the gathering of tombs removed from the building when it was restored, the cell on the staircase of approach to the gallery, and the Bishop's Effigy on the south side of the nave, were examined under the guidance of Mr. T. H. Baylis, Q.C. The fine effigies in the round church were also inspected. Progress was then made to the hall of the Middle Temple, where the fine screen and open timber roof, not unlike in principle the later one in the hall of Lambeth Palace, were pointed out to the visitors.

In the afternoon a meeting was again held in the rooms of the Society of Antiquaries, Burlington House, when Mr. St. John Hope, M.A., read a paper on the "Architectural History of Windsor Castle," in anticipation of the visit on the 19th. An hour each was then devoted to visits to St. James's Palace, where the chapel, with its elegant but simple flat roof, and the old gateway of brick, were examined, and Buckingham Palace, where the paintings were inspected.

The concluding meeting was held at the Mansion House in the evening, when an interesting congress, well attended, was brought to a close. Two extra days are being provided for, however, so that the visit of the members to London may include as many objects of antiquarian interest as possible.

On the 19th a visit to Windsor Castle was arranged for, when the earliest portion of the fabric was to be pointed out by Mr. St. John Hope; the library and the State apartments, with the chief of the paintings, were to be described by Mr. R. R. Holmes, F.S.A., Librarian to Her Majesty. Later in the day St. George's Chapel, the curious timber cloisters, and the other special features of the Castle were to be examined.

We understand that Thursday, the 20th, was reserved for a visit to Silchester, where the Roman walls and the excavations now in progress will be examined.

INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS:

ANNUAL MEETING.

THE annual meeting of the members of this Association was opened in the Town Hall, West Bromwich, on Thursday, July 13. The President (Mr. J. Cartwright, of Bury), presided, and there were present Mr. J. T. Eayrs (West Bromwich, President-Elect), Messrs. T. De Courcy Meade (Hornsey), C. Jones (Ealing), Major Isaacs (Holborn), W. H. Savage (East Ham), S. S. Gamble (London), R. Hammond (London), Spencer Harty (Dublin), H. Percy Boulnois (Liverpool), F. Ashmead (Bristol), R. Godfrey (King's Norton), A. T. Davis (Shrewsbury, Honorary Secretary for the Midlands), E. R. S. Escott (Halifax), J. H. Cox (Bradford), S. S. Platt (Rochdale), J. Lobley (Hanley), J. Gregory (Padiham), J. A. Crowther (Bootle), E. J. Silcock (King's Lynn), E. M. Scott (Wednesbury), H. Richardson (Oldbury), C. F. Marston (Sutton Coldfield), J. Clare (Sleaford), H. W. Taylor (Newmarket), A. G. Collins (Reading), A. H. Campbell (Stratford-on-Avon), C. C. Smith (Dalton-in-Furness), J. S. Pickering (Nuneaton), W. H. Jukes (Tipton), C. W. Shackleton (Coseley). W. H. Smith (Carlisle), R. H. Middleton (Walsall), W. C. Eddowes (Shrewsbury), S. Edmundson (Burnley), H. Dearden (Batley), J. W. Wardle (Longton), T. W. Stainthorpe (Eston, Middlesbrough), F. Massie (Wakefield), T. L. Lewis (St. George's, Bristol), H Goodyear (Colchester), G. S. Horton (Felixstowe), J. Gammage (Dudley), J. Robinson (Winchester), E. P. Hooley (Nottingham), C. C. Hooley (Barton-upon-Irwell), J. N. Brown (West Hartlepoo), S. Stead (Harrogate), W. H. Hopkinson (Keighley), J. Wilson (Bacup), J. Morgan (Pontardawe, Swansea), W. G. Lawson (Southgate), E. Willcox (Birmingham), C. Kirby (Newport), F. Cartwright (Bury), H. J. Clarson (Tamworth), H. Waye (Millom). T. W. Franks (West Bromwich), and T. Cole, Secretary.

Prior to the annual meeting a special general meeting of members was held to consider a proposed alteration of the articles of association. Mr. R. Godfrey (King's Norton) moved that the articles of association be amended by inserting in article 25 the words "fifteen ordinary members" in lieu of "twelve ordinary members." Having referred to the large *ex-officio* representation of past-Presidents on the Council of the Association, he expressed an opinion that the elected representatives should be increased.

Mr. J. T. Eayrs (West Bromwich) seconded the proposition, which after prolonged discussion was adopted almost unanimously.

The business of the special meeting having been transacted the Deputy Mayor (Councillor G. Salter) attended, and in the name of the Mayor and Corporation offered the Association a hearty welcome to West Bromwich. They looked upon the visit of the Association as a great honour to the town, and they thought additional honour had been conferred by the choice of their Borough Engineer, Mr. Eayrs, as President for the ensuing year.

The President acknowledged the welcome which they had received from the Corporation.

Mr. T. Cole (Secretary) then read the twentieth annual report of the Council, which expressed satisfaction at the continued success of the Association and of the meetings held. During the year ending April 30 fifty new members, consisting of thirty-seven ordinary members and thirteen graduates, had joined the Association. At the close of the year there were on the roll of the Association eleven honorary members, 485 ordinary members, and forty-seven graduates, making a total of 543, or an addition of forty to the membership compared with the previous year. The balance of cash in hand was 110*l.* 1s. 1d., in addition to 300*l.* invested in Southampton Corporation stock. Mr. J. T. Eayrs, West Bromwich, had been elected President, and Messrs. A. R. Binnie, London; J. Cooper, Edinburgh; and S. Harty, Dublin; Vice-Presidents. The premiums for the best papers read had been awarded, the first, of 10*l.*, to Mr. J. H. Cox, of Bradford, for his paper on "Street Tramways and Electrical Traction," read at the Bury meeting; and the second of 5*l.* to Mr. Spencer Harty, of Dublin, for his paper (read at the Dublin meeting) on "Sanitary and other works carried out by the Corporation of Dublin."

The President, in moving the adoption of the report, expressed his satisfaction that in members, finances, and examination, the Association continued to maintain and improve its position.

Mr. J. T. Eayrs seconded the proposition, which was adopted.

Mr. Massie (Wakefield), thought it would be an advantage if members were supplied with a printed copy of the annual report.

Mr. T. de Courcy Meade explained that the report, in order to be a complete record of the year's proceedings, was brought up to the morning of the annual meeting, so that the proposal was impracticable.

A question was raised as to the attendances of members of the Council, and on the proposition of Mr. Massie (Wakefield) it was resolved that in future printed lists of attendances should be supplied with the ballot papers.

The President then presented the premiums, in the form of books selected by the receivers, for the best papers read to the Association—the first to Mr. Cox, of Bradford, and the second to Mr. S. Harty, of Dublin.

The President then introduced to the meeting his successor, and, in handing over the Presidential chair, congratulated Mr. Eayrs, upon his appointment to the position.

Mr. Eayrs having been warmly welcomed into the Presidential chair, proceeded to propose a vote of thanks to the retiring President (Mr. Cartwright) for his able services during the past year. He was certain that no one who had preceded Mr. Cartwright had filled the office with greater honour and credit to the Association. His energies had always been at the service of the Association, and the lustre which had always attached to the chair had lost none of its brightness during Mr. Cartwright's term of office.

Mr. Ashmead (Bristol) seconded the vote of thanks, which was accorded with enthusiastic unanimity.

Mr. Cartwright, in acknowledgment, assured the members that it had been a pleasurable duty to him to act as President of the Association during the past year.

The President's Address.

The newly-elected President, Mr. J. T. Eayrs, F.S.I., Assoc.Mem.Inst.C.E., then delivered his Presidential address, in the course of which he said:—In my search for a suitable theme upon which to found my remarks, it has seemed to me upon consideration that it may be possible to occupy some of your time to-day not unprofitably in briefly reviewing those modifications which from one cause or another are gradually taking place in our position both as individuals and as an association.

We, in common with other kindred officers engaged in public or semi-public service, have need to be constantly watchful of our own interest, constantly alive to the imposition of new duties upon us, and fully capable of directing and advising those who employ us in every phase and every modern aspect of thought and legislation which may affect ourselves and our profession.

It is scarcely necessary to point out to you the fact that the position which we hold as individuals and as a society is rapidly increasing both in honour and in responsibility, and that in the advances which are made from time to time in sanitary science and local government our place becomes more and more defined as one of trust and importance; still, I wish to impress upon you the necessity of the most careful study and watchfulness on the part of the individual as well as of the association for the protection of our interests.

At the present moment we are met by two great tendencies which are modifying and affecting our position and our duties: the great social causes of which these tendencies form the visible expression comprise subjects far beyond the scope of an address like mine, however interesting it may be to the student of social science; at the same time this much may be said with

certainty, that they represent a movement the final end and direction of which few of us would dare to indicate. This is no question of party politics, but rather of natural growth and evolution, and all political parties are affected by it equally.

The first of these tendencies to which I allude is that to decentralise. We are now met at every end and corner by a demand for local self-government: one might almost say for "Home Rule." This demand is one which Governments cannot afford to disregard, and which has received abundant recognition already, while even greater concessions are projected for future legislation. Results are but now for the first time becoming manifest to us, and present a problem well worthy of serious analysis. I am not sure that they will be found to be entirely good. It is, in my opinion, not an unmixed blessing to hand over to a purely elective body the complete control of their own affairs. Small boards and small councils necessarily composed of men whose business avocations are numerous and engrossing, and whose leisure for the study of social or sanitary problems is even more limited than their desire for knowledge, are scarcely bodies calculated to do great works. It would be easy, doubtless, to point to the splendid achievements of the great cities and municipalities of this country where gigantic projects are magnificently carried out—to quote the energy of Liverpool, the pluck of Manchester, or, to come nearer home, the determination of Birmingham in public works necessary for the prosperity and well-being of their citizens and the adornment of their streets, but the great majority must of necessity be far otherwise.

A study of small municipalities and local boards s far from being uninteresting. Those of you who have read that clever but sarcastic book, "The Natural History of Local Boards," * have doubtless been familiar with many of the characteristics which the author so well knew how to delineate; the inherent weakness of local bodies was never so well illustrated. Personal prejudices, party politics, and petty financial considerations all play a part in the decision of questions far too great and too broad to be thus obscured. The desire for real improvement thus becomes frittered away, and valuable opportunities are lost. To all of us such disappointments are only too familiar, and no profit can ensue from further dwelling upon them.

In this decentralising movement the most important tangible result has been the Local Government Act of 1888, and the consequent creation of county authorities and new duties. We are all aware that the system thus formed is still incomplete, and I do not propose here to discuss those details which are necessary to its completion. Sufficient time has, however, elapsed since the Act came into force to permit a passing glance at the character of the authorities created, the new duties imposed upon them, and the spirit in which they have been entered upon.

County authorities—and in this term I do not include county boroughs—are much like other local boards, save that they possess a greater number of members of leisure and position; men will be found upon them whose views and opinions are liable to be swayed by the considerations I have already mentioned, and although a great many have entered upon their work with energy and vigour, and have done good already, others have largely failed to grasp the broad duties which devolved upon them in their creation. I make no mention of county boroughs, because the municipal side of their functions has completely swamped the county portion.

Two duties of the County Council seem to call for more than a passing word from me: (1) the power to enforce the provisions of the Rivers Pollution Prevention Act (sec. 14), and (2) the maintenance of main roads (sec. 11). Both these sections have already given rise to questions of interest and of some difficulty.

The pollution of rivers has been taken up by the sanitary committees of Staffordshire, Warwickshire, Lancashire, and Yorkshire, and in some cases not only is the pollution from common sewage and manufacturers' refuse in undrained districts inspected and reported on, but special inspection of sewage works belonging to local authorities has been instituted. No one will, of course, question the rights of the county councils with respect to rivers pollution prevention, but the claim to enter upon and inspect the sewage works of all subordinate authorities without notice is a somewhat arbitrary one, and is calculated to create no little friction, and if this be the case with subordinate authorities, still more will such a claim be resented by the county boroughs. Doubtless we are all anxious to keep our sewage out of the rivers and canals which surround and intersect onr districts, but nobody is more alive to the difficulties and hindrances which we as sanitary engineers constantly meet with. The institution and maintenance of proper and efficient works of drainage, the comparative merits of the various systems of sewage treatment, are among the most trying and anxious problems of our professional work, and I cannot help feeling that any rash or precipitate attempt to enforce arbitrary regulations by county committees will not be a movement calculated to do permanent good work.

With regard to the maintenance of main roads, the position of affairs has advanced even further, and in many instances the relations between the County Council and its highway authorities have been subjected to considerable strain. The subject of main roads and their maintenance has already become a question for arbitration by the Local Government Board. To what extent shall the county contribute? The main difficulties are the maintenance of footpaths (notwithstanding the Warminster decision), the cost of scavenging, watering, and improvements, and the dispute arises over the word "towards." Let me remind you that previous to the Act of 1888 three-fourths of the cost of maintenance of main roads was borne by the county, and the remaining one-fourth was provided by imperial revenue. It cannot be supposed that the intention of the Legislature, in a measure for extending the powers and privileges of local authorities, was to limit the scope of highway boards and to place them in a worse financial position than before.

I submit that the intention of Clause 11 was to include in the words "maintenance, repair, improvement, and enlargement," such things as widening, straightening, forming new footpaths, improving gradients, &c., and members will find that this contention has been in some cases upheld. In any case, the question is one which is deserving of the most serious and careful consideration, and a study of the various arbitrations and decisions of the Local Government Board will well repay the time spent upon it.

This particular point does not affect county boroughs like West Bromwich, but there remains a question relating to main roads in which they are concerned, and which it is convenient to mention here. I allude to the power of creating additional main roads. There seems to be no reason why the council of a county borough should not if they think fit declare additional main roads, and as the cost of these roads is provided out of the borough fund, a fund collected on the poor-rate assessment, it alters the incidence of taxation for the repair of these roads. This is the more important as land, railways, and canals pay this rate on the full assessment, but are rated to the district rate only on one-fourth. To put it briefly, by such a change the district rate is relieved at the expense of the borough fund, and as the amount realised from the borough fund is greater, there is a positive advantage to those rated at the full amount.

But apart from such technical difficulties as those to which I have alluded, I feel that we shall all recognise the good work done under the Local Government Act, and at the same time admit that in time, "which tries all things," more may be accomplished. Much will depend upon how the work is approached by the county authorities and their officials, and it may be a useful adage to remember that "more flies are caught by treacle than by mustard."

In spite, however, of the decentralising tendency which marks such legislation as this, let us be grateful that our great central authority remains intact; undiminished in power, and adorned by a staff whose knowledge and experience justly entitle them to be arbitrators and rulers in local government. Perhaps there may have been moments when delays have seemed vexatious and unnecessary, when restrictions have appeared arbitrary, or when decisions have unexpectedly gone the wrong way. Such experiences occur to all of us; at the same time I feel confident that you will agree with me in the main that we have much to be proud of and much to appreciate in the broad and reasonable spirit which guides their decisions. Not the least important of the duties which fall to our lot is to appear before an inspector and represent the needs and requirements of the place under our charge, and in so doing it is no small consolation to feel that we are in the presence of an expert, who not only listens patiently to the evidence placed before him by the local authority, but also to the grievances and opposition of dissatisfied ratepayers, and whose report will not be influenced either by local bias or narrow prejudices.

Our new decentralised system still lacks completion, and there does not appear much prospect of the District Councils Bill becoming law for some time. I do not, however, propose to discuss that measure, as it will receive attention at your hands in a paper to be read at this meeting. I propose instead to say a few words upon another modern tendency—the development of municipal control. I do not so much mean the growing desire of towns for the honour of incorporation, nor do I allude to the rapidity with which the modern municipality starts into vigorous life, but rather do I refer to the tendency of the town council to municipalise everything and to arrogate to themselves the control of every department and every operation which can by any conceivable pretext be termed "municipal."

In the modern borough up to date we are to have the water supply, gasworks, electric lighting, tramways, electric and hydraulic power, common lodging-houses, artizans' dwellings, schools for art, science, and manual training, with all kinds of technical education, and even fire insurance; nor does it end here; the London County Council is setting the example, and the larger provincial centres may probably follow, in the establishment of factories and workshops at the expense of the rates for the carrying out of municipal works without the intervention of a contractor, and it is now proposed that corporations should undertake the prevention of sweating.

It is no part of my intention to discuss in this address the political or social bearing of this new phase of trade competition, but it is merely a forshadowing of a new doctrine which may affect our duties to a large extent. The relation of the municipality to the working man and to the employment of labour generally has assumed new features of late years. The claim of the working man to a "fair day's wages" for a "fair day's work," a claim stamped by Carlyle as the "everlasting right of man," must now be dealt with by municipal authorities. It may be that some of you will say that this question does not really concern us in our official position. I think you may find yourselves called upon to undertake anxiety and responsibility in connexion with this problem. But this tendency to municipalise every public work is bound to involve us in greater labour and greater responsibility. New duties and new requirements are soon thrust upon us, whether we will or no. It is not enough that we are to carry out our ordinary duties of engineers and surveyors in making and maintaining roads and sewers and devising schemes of street improvements, but we are called upon to be architects, decorators, mechanical engineers, electricians, landscape gardeners, and, I may almost add, financiers, and, in addition, we find ourselves constituted into a labour bureau. We may be called upon not only to see that contractors pay the standard rate of wages to their *employés* for whatever work is done for the municipality, but at any moment to devise some work for the unemployed. We are liable to be called to account for every man who presents himself to work, however worthless or idle he may turn out to be, and countless annoyances follow. Add to this that financially the scheme is usually a failure. It is true that in the recent circular affecting local authorities and guardians and the employment of the unemployed, a suggestion was made as to the rate of wages to be paid, but this affects the whole question of contracts and trade competition. At the same time that public bodies are being urged to provide their own workshops and compete in contracts with their former contractors, members keep bringing forward resolutions not to employ any firm who does not pay trades union wages, which are settled by the men themselves and liable to alteration at any moment. Surely this is confusion worse confounded. We, as officials, are expected to estimate with something like accuracy our requirements for the year's work, and also the cost of schemes extending in some cases over several years, and elements such as I have named cannot fail entirely to upset our calculations.

Let me for a moment quote my own recent experience. We opened a stoneyard for the unemployed in January, and kept it in operation just three months—83 working days, with the following result: Out of a total of 121 men, 30 worked one day and 11 two days—*i.e.*, more than one-third worked two days and under, another one-third worked nine days and under, leaving 40 men who averaged 38·5 days apiece. But the

* This book was reviewed in the *Builder* for December 29, 1888, at some length.

worst feature of this was the cost. These men broke 672 tons of Rowley ragstone at a cost of 295*l.* 7s. 1d., including superintendence, and the same stone could have been purchased ready broken at contract price for 193*l.* 4s., showing a loss to the Corporation of 102*l.* odd.

I could pursue this question of labour under municipal auspices, but I feel that all of you must have known something of it. Do not imagine that I consider it any part of my function to discourage healthy and vigorous municipal growth; at the same time, it is certainly open to argument whether or not the tendency is to go too far.

No review of our present position would, however, be complete without some reference to recent progress in sanitary legislation. Since the passing of the Act of 1875, public health has advanced by leaps and bounds, until it has attained a pre-eminence which requires careful enquiry and careful study. Never probably in the history of any nation was there a time when those to whom is entrusted the care of public health and the administration of sanitary legislation have occupied a position of greater difficulty and greater responsibility.

The activity which has distinguished our sanitary scientists has been reflected in the pages of our Statute Book, and a number of minor Public Health Acts have been passed for the purpose of modifying the principal Act, or dealing with matters which were not included therein. I do not propose to weary you with an epitome of these statutes, some of which are of the briefest character, but merely to comment upon one or two salient points affecting our profession.

Passing over minor statutes, I would remark that it is a misfortune that there is a growing tendency to make sanitary laws adoptive. The two Acts relating to infectious disease and the Public Health Acts Amendment Act (a most unwieldy title) come under this condemnation, and thus contribute to the opportunities already afforded to smaller authorities to injure not only themselves but their neighbours. The fact that clauses in private Acts already complicate the uniform practice of sanitary engineering is sufficiently puzzling to the compiler of statistics without the further complications of adoptive law.

Let us, however, suppose the Act of 1890 to have been adopted, and occupy a few moments over some of its paradoxes. Everybody, of course, knows that according to the Act of 1875, section 4, "*a drain*" is a drain which belongs to one building only, or to buildings within the same curtilage, &c., while "*a sewer*" includes all sewers and drains except those so defined; and, further, by section 13, every sewer is vested in the local authority. These facts, though at times unpalatable, are fairly clear; but in consequence of certain decided cases, the draughtsman of the Act of 1890 framed a clause (19) in which for the first time we hear of "private drains," which serve for the drainage of more than one house belonging to different owners. Further than this, within the limits of the metropolis (Metropolitan Local Management Act, 1855, sec. 74) a group of houses may be drained by a "combined operation," which combined operation has been decided on appeal to be a *drain* and not a *sewer*. It thus happens that owing to the division or sale of properties, the erection of boundary walls, and other matters over which neither the sanitary authority nor its officers have any control, *drains* may become *sewers*, but no means appear to exist by which the sanitary authority may divest itself of a sewer and restore it to its position of drain. One crumb of comfort remains, and that is that the sanitary authority may not be held liable for any nuisance arising in such a drain unless it can be shown that they had reasonable means of knowing that the drain had become a sewer, or if the conversion of the drain into a sewer had come about by an illegal connection and without their consent.

It was in view of difficulties akin to these arising in my own experience that I addressed a series of queries to a number of selected towns; and my apology for speaking at such length upon so technical a detail consists in the replies I received. Out of sixty-four authorities, no less than thirty are in the habit of permitting what they call "common drains"—*i.e.*, sewers—to be laid by private owners, and eleven went so far as to say that they did not consider such drains to be sewers. I can only refer anyone who is inclined to agree with these eleven to a recent decision which confirms what I have stated above ("Pinnock *v.* Waterworth"). In a similar case differing only in detail of yard separation—*i.e.*, houses with separate yards and a common entry, no less than forty-two permitted such drains—*i.e.*, sewers, to be laid. Special exception must be made of Reading, which has a private Act similar to the Metropolitan Act above quoted; of Hendon, who make a special agreement for contracting themselves out of the Act; and of Sheffield, who exact a form of indemnity; but how far such special agreement or form will override the statute law is at least open to grave doubts. In one case experience came to the rescue—I allude to Middlesbrough, where such drains have been forced upon the Sanitary Authority as sewers.

It will be seen from these few details that the question is fraught with grave difficulties, and if disregarded, may land an authority into very serious expenditure and litigation, besides discrediting the engineer whose advice has guided the authority in their action.

The improvements effected in this Act are too varied and too numerous to mention in detail; the clauses relating to private streets, back roads, public sanitary conveniences, the cleansing of courts, the provision of hoardings, and the safety of structures, all form valuable additions to the powers we exercise, and notwithstanding they entail additional work and responsibility, it is the duty of everyone of us to urge upon our employers the advisability of adopting these portions of the Act if they have not already done so.

No mention of this Act would be complete, however, without some allusion to the alteration made by it in the construction of streets. To comment upon it at length is unnecessary, as we are all aware of the excellent work done by our colleague, Mr. Spinks, in collecting all the information on the subject. One word only is required. Since the judgments therein quoted as to the definition of a street, the Public Health Act, London, has gone further, and in Sec. 141, has added to the previous definition these words, "whether or not there are houses in such street."

A new adoptive Act relating to private streets became law last year, but I am given to understand that it is not an unmixed blessing. We shall, however, hear more about it in a paper to be read at this meeting.

Another Act which requires consideration on the part of municipal surveyors is the recent Factories and Workshops Act, 1891, in which the duties of both the Surveyor and Medical Officer are increased, but as the provisions of this Act were so ably dealt with at our last annual meeting by our colleague, Mr. Boulnois, I will not pursue this portion of my subject further, lest I should weary you by its dryness and technicality. I feel that even if the questions herein touched upon were not familiar to you, I have made it fully apparent that the law of public health needs consolidation. The most recent of Public Health Acts (London, 1891), has attempted to do this work for London. In this enactment, which contains 144 sections, over 40 contain wholly new matter, while many others have been amended and improved. The extent to which the ground has been cleared and good work done by this consolidation may be best understood by a glance at the Fourth Schedule, which details the Acts repealed.

Perhaps in the remote future, when the course of legislation runs more smoothly, there may be a hope that the Public Health Acts for England and Wales will be consolidated, and that we shall be spared the necessity of referring to repealed clauses and of struggling through the pages of Lumley, Glen, Fitzgerald, and Macmorran, beside which the typically unintelligible "Bradshaw" becomes a mere A B C book.

Before I conclude my remarks I cannot but congratulate our Association upon doing such good work for our profession, and also upon the great accession to our numbers. I am also pleased to see the great interest which is taken in our annual and district meetings, and the generous recognition we receive at the hands of the local authorities and others. These annual and district meetings not only bring members together in order that they may know each other personally, whereby friendships are formed which would otherwise be almost impossible, but the reading and discussion of papers of professional interest, and the interchange of ideas on various points of difficulty and practice in municipal work, and the comparing of notes, all tend to the direct benefit of the various local authorities, and no one but ourselves can estimate the advantages gained by personal association. It is gratifying to know that a large number of local authorities think it worth their while to pay the expenses of their surveyors to our meetings, and I am sure they get good value for the money thus expended.

I spoke at the commencement of my address of modern tendencies, and in this connexion I am reminded of another. I mean the tendency to raise the standard of everything. The evolution of the modern municipal engineer is a subject which may at any time fitly engage the attention of those in authority. Models of the old style of surveyor, now becoming a *rara avis*, are well known to some of you—men who having been farmers were supposed to be land surveyors; masons who were supposed to understand drains; drapers who, being accustomed to a yard stick, could measure anything; and even men of such varied talents as to be able to combine in one person the offices of clerk, engineer and surveyor, nuisance inspector and collector, and who all unfortunately agreed in their capacity to accept salaries which were a disgrace to the authority who employed them. What wonder, then, that the profession, while it contained many talented men among its ranks whose works live after them as monuments of skill, undeniably became the refuge of broken men of every class and calling?

The value of our examinations and certificate is a subject which should concern everyone of us, and it has come before us forcibly during the past year, owing to the attempt of the Sanitary Institute to obtain a Royal Charter. Far be it from me to deny that the Sanitary Institute has done good work in keeping the advantages of sanitation before the general public, or to depreciate the value of a certificate which has become a hall-mark for sanitary inspectors. It is for us to see that the examination which we hold and the certificate which we issue is a true guarantee of the proficiency of those who possess it. There will then be little difficulty in persuading our local authorities, when advertising for an Engineer and Surveyor, to require that all applicants should either be members of our Association or have obtained our certificate. To us, and in my opinion to us alone, should belong the door by which entrance is gained to the ranks of our profession, a door to which efficient knowledge is the only key. The Association which we have created has become one of world-wide influence and power. Only within the last few weeks I have seen an announcement that a local authority of a seaside resort, under a system of sanitary registration are prepared to officially accept a certificate of any member of our Association as to the sanitary condition of premises within its area. The development of Indian and colonial municipalities has an especial interest for us, whose members are scattered over the face of the globe, and who are called upon to design and direct great works of municipal engineering and sanitation in the cities of the east as well as those of the western world.

Finally, gentlemen, in thanking you for the attention with which you have listened to these random thoughts, may I be permitted for a moment to dwell upon the more ideal aspect of our profession? The tendencies to which I have alluded in my address are gradually moulding our municipal life, day-by-day new discoveries are made, new forces are brought into action, and who is to say what the ultimate product may be? There has been no more favourite theme for speculation than the results of social evolution; More's "Utopia" and Bacon's "Atlantis" among English classics, and later Dr. Richardson's "Hygeiopolis" and Bellamy's "Looking Backward," all afford examples of this form of phantasy. Nor is it altogether an idle pursuit: the doctrine of evolution applies even to Local Government, and I venture to believe that even in its most idealised form we shall occupy an honourable place. In that ideal municipality we may hope that at least one disturbing factor will have disappeared—I mean the strife engendered by party politics. We, as officials, have no politics, but it is no uncommon thing to see our pet schemes for improvements lost in the whirlpool of contending factions. In that municipality of the future, whether our streets are paved with wood, indiarubber, or toughened glass, whether our tramways are aërial or subterranean, even though the great sewage problem be solved at last, I venture to think the municipal engineer will receive even more credit and honour than he does now.

Mr. H. P. Boulnois (Liverpool) said he was sure he was echoing the feelings of members generally in proposing a hearty vote of thanks to the President for his excellent address. They might call it a model Presidential address, full of literary merit, sound common sense, and practical information. It contained, of course, as most Presidential addresses did, reference to some disputable questions, but it was not their rule to discuss the Presidential address, and, therefore, he would content himself in moving "That the best thanks of this meeting be given to Mr. Eayrs for his Presidential address."

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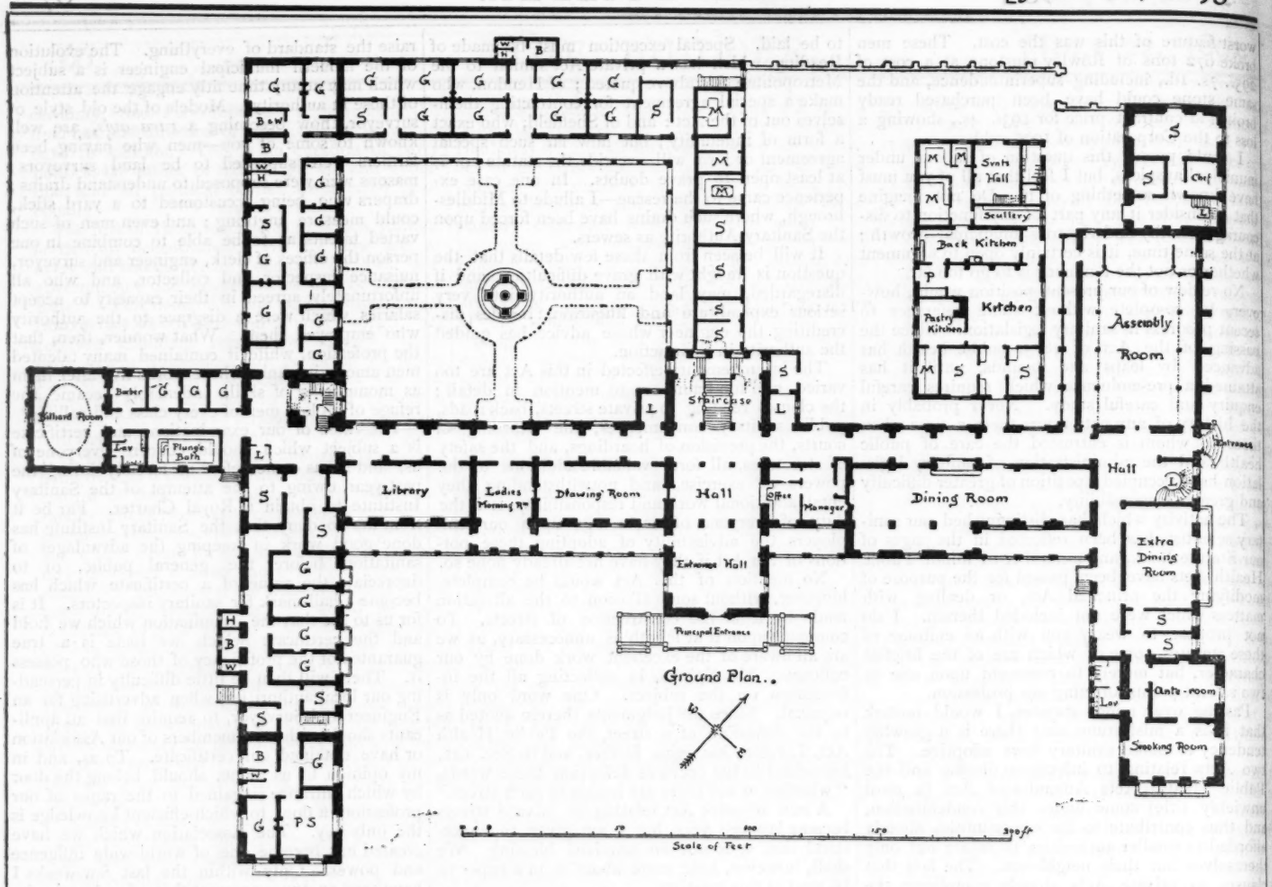

G. Guests' Rooms. S Service, Stores, &c. M. Larders, &c. B. Bath-rooms. W. Closets. H. Slops, &c. L. Lifts.

Plan of Proposed Hotel, Funchal, Madeira.

Mr. J. Lobley (Hanley) seconded the vote of thanks, which having been accorded, was acknowledged by the President in terms of suitable brevity.

The meeting then adjourned, the members being entertained at luncheon by the Mayor of West Bromwich (Councillor Akrill) at the Masonic Hall. The toast of the Queen having been loyally honoured, the Mayor proposed the "Incorporated Association of Municipal and County Engineers." Having congratulated the Association upon the choice of Mr. Eayrs as President, an office he believed he would fill to the satisfaction of the Association, he said he was pleased at the inception of the idea which brought that Association into existence. Not only were they fulfilling their responsibilities and duties, but they met together year by year to bring all their intelligence to bear upon the subjects arising for discussion, with the result that the towns they represented received the benefit of the experience gained at their meetings.

The toast having been honoured,

The President, in acknowledgement, thanked the Mayor and Corporation for their hospitality to them, and said that wherever municipal engineers went they were always received with the greatest cordiality and kindness.

Mr. H. P. Boulnois proposed the toast of the Mayor and Corporation of West Bromwich.

The Mayor returned thanks, and echoed the hope expressed by Mr. Boulnois, that towns would see their way to pay the expenses of their officers to the meetings of the Association.

After luncheon the members reassembled in the Town Hall, and the business of the annual meeting was resumed.

Mr. R. Godfrey (King's Norton) formally moved the re-election of all the hon. district secretaries, which was seconded by Mr. T. de Courcy Meade (Hornsey) and adopted.

On the motion of Mr. Godfrey, Messrs. Simpson (Blaby), Silcock (King's Lynn), Eachus (Edmonton), and Radford (Putney) were elected scrutineers, and Messrs. Creer (York) and Parker (Hereford) auditors.

The meeting then proceeded to the reading and discussion of papers, but we must break off our report here until next week.

Illustrations.

SCULPTURE.

THE two sculpture subjects illustrated were two of the finest works in the Old Salon at Paris of this year. M. Falguière's fine and energetic figure of "Poésie Héroïque" was conspicuous facing the principal entrance; it may be taken as illustrating the type of Greek lyric poetry described in Wordsworth's lines—

> "'Woe, woe, to Tyrants!' from the lyre
> Broke threateningly, in sparkles dire
> Of fierce vindictive song."

Indeed the figure might almost have been made to illustrate these lines; but that we fear French artists are little acquainted with Wordsworth. The figure is a difficult one to render justice to in a single illustration, as the view which gives, as this does, the profile of the features, misses the best view of the action of the figure as a whole, as the left leg is seen too much foreshortened. The work is perhaps not equal in sculpturesque quality to one or two former productions of the artist, but it is certainly one of his most original and vigorous conceptions.

The statue of "L'Architecture," by M. E. L. Barrias, was designed as a figure for the tomb of an architect; it is a nobly posed monumental figure, pathetic in expression without being sentimental, and was regarded by some critics as the finest work in sculpture of the year.

INSTITUTE OF CHARTERED ACCOUNTANTS:

PART OF FRIEZE GREAT SWAN ALLEY.

THIS and the other illustration of the same building are reproduced from an illustrated monograph of the building, which is noticed more in detail under the heading of "Books" in this issue. This plate shows the end of Mr. Thornycroft's frieze, illustrating the arts and crafts connected with building. The figure of the Surveyor is at the extreme end, next the Architect; then follow the Workmen, each with his appropriate tools. The decorative carving in the lower portion is by Mr. Harry Bates. The architect of the building is Mr. John Belcher.

ANGLE VIEW OF BUILDING.

The corbel under the oriel is formed of the arms of the Institute of Chartered Accountants, with two supporting figures, the work of Mr. Harry Bates. The figure of "Justice" above is by Mr. Thornycroft. The view gives a general idea of the architectural treatment of the building as seen in perspective; the detail elevation of the principal front was published in the *Builder* of August 27, 1892, and the plans and sections, with a smaller elevation, were given in the *Builder* for January 12, 1889.

DESIGN FOR CLARENCE WING, ST. MARY'S HOSPITAL, PADDINGTON.

THIS drawing, which is exhibited at the Royal Academy, is a perspective view of the design submitted by the architects, Messrs. Salter & Adams, in a competition limited to six architects. The competitive designs appear to have been, as we understand, entirely thrown over, and no one of them is to be executed.

The small plans appended to the drawing give the general arrangement of the building. The authors in their descriptive report claim to have given careful consideration to light, air, and ventilation for the special wards, and they have secured the circulation of air on three sides of each ward, as will be seen by the block plan, which is very well arranged in this particular. The wards were intended to have a window on each side of each bed, the upper lights falling as hoppers, the lower opening inwards as casements, thus getting the advantage of solid frames, and no casings with spaces for the harbouring of vermin; on the importance of this we entirely agree.

The elevations were designed to harmonise with the present hospital buildings; the walls were intended to be faced with red brick and terra-cotta dressings. The cost of the building was estimated at 47,671*l.*

PROPOSED HOTEL AT FUNCHAL, MADEIRA.

THE site of this hotel, occupying over 10 acres, is on high ground sloping towards the sea, about three-quarters of a mile west of the town.

The walls are to be constructed of rough stone work and concrete faced with stucco, the ornamental features being chiefly in warm terra-cotta. The plans are so arranged that suites of rooms can be divided off at various parts.

There is a garden court with cloister on two sides and a water tower in one angle; the kitchens, &c., form a separate block. The estimated cost complete is 100,000*l.*

The architect is Mr. Henry Rose, of London, and the drawings of the building are exhibited at this year's Royal Academy.

ARCHITECTURAL ASSOCIATION SUMMER VISITS:

CHIDDINGSTONE AND PENSHURST.

A LARGE number of members went on Saturday last to the picturesque corner of Kent in which are the interesting villages of Chiddingstone and Penshurst. The former was visited in the morning, and sketches were made of the well-known half-timbered houses, which are excellent examples of early seventeenth-century English domestic work. Not only are they picturesque in grouping, but the detail both of the exteriors and of the interiors is of excellent quality, well studied and refined. The church, which in plan consists of nave and chancel with north and south aisles to each, western tower and south porch, has some good Decorated windows, and is notable for the absence of a chancel arch. The south porch is of later date than the church itself, being evidently of seventeenth-century date. There are in the church a few simple brasses and some curious cast-iron tomb slabs, reminding us of the time when the south rather than the north of England was the centre of its iron industry. From the point of view of artistic sentiment one can scarcely wish that sufficient coal may be raised in the south to revive the iron furnaces. An eighteenth-century font cover has been diverted from its proper place, and is now to be seen in the lumber depôt.

In the afternoon an excursion was made to Penshurst, the chief attraction of which is of course the Place, the ancient home of the Sidneys. The house was built about 1330 or 1340, A.D., and, with the exception of the kitchen, is practically perfect as originally built, though large additions have been made at various times. The hall and its adjuncts forming the original house were built by Sir John Pulteney, who, in 1322, obtained the king's licence to embattle his mansion-house of Penshurst, and died in 1349. Considerable additions were made by Sir John Devereux, who obtained licence to fortify and enlarge his house in 1393. John, Duke of Bedford, third son of Henry IV., and regent for Henry VI., bought Penshurst and added a wing to the house before his death in 1435. The property having come into the possession of the Crown by the execution of Sir Ralph Fane for alleged high treason, was in 1553 granted by Edward VI. to Sir William Sidney, in whose family it has since remained. Sir Henry, the son of Sir William, made further additions to Penshurst, and in 1585 built the gateway tower. Since that time various additions have been made by successive owners, not always in the best taste or with strict archæological fidelity to the style attempted.

On the south side of the house is a good example of a "formal garden," which, in view of recent discussions, attracted considerable attention from the visitors.

The Place is not the only attraction of Penshurst. Besides the church, with its curiously pinnacled tower and other points of interest, there are several excellent examples of old houses, the most interesting, perhaps, being the seventeenth-century butcher's shop at the upper end of the village, though the group next the churchyard, with the quaint lych-gate, is, for picturesqueness, hard to beat.

COMPETITIONS.

NEW CHURCH, BAMBER BRIDGE, NEAR PRESTON.—A new church is about to be erected at Bamber Bridge, near Preston, for a parish to be formed from the parishes of Bamber Bridge and Walton-le-dale. Thirty-one designs were submitted in open competition, and that by Mr. R. Knill Freeman, of Bolton and Manchester, was selected by the assessor, and adopted by the committee. The church when complete will consist of wide and lofty nave and narrow side aisles to be used as passages only, and north and south transept. The chancel will be large and well raised above the nave, and will have a morning chapel on the north and vestries with organ loft over on the south side. The style is Late Decorated Gothic. The church will, when complete, provide accommodation for 800 people.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon last at Spring-gardens, the Chairman, Mr. John Hutton, presiding.

The Summer Recess.—On the motion of Dr. Collins, it was unanimously resolved—

"That the Council at its rising on Tuesday, 1st August, do stand adjourned for the summer recess until Tuesday, 3rd October, and that no Committee do meet after the date of the Council's adjournment until Monday, 25th September, unless in a case of urgency which will in the opinion of the Chairman of the Committee not admit of delay; provided that the Chairman of the Council may convene a meeting of the Council during the recess if he deem it necessary to do so."

The Office of Comptroller.—The General Purposes Committee submitted a long report as to the duties of this office, and recommended the appointment of Mr. H. E. Haward, at a commencing salary of 700*l.*, rising to 1,000*l.* a year by annual increments of 50*l.* The consideration of the report was adjourned for a week.

The Architects' Department: Safety of Factories in case of Fire.—The Establishment Committee presented a report in which they said:—

"The Building Act Committee inform us that the Superintending Architect has called their attention to the necessity for further assistance in the Building Act branch of his department, consequent on the great increase of work during the last two or three years. This increase is partly due to the duty imposed upon the Council by the Factory and Workshop Act, 1891, of inspecting the factories in London (about 1,400 in number), with a view to insuring safety in case of fire. Having carefully considered the matter, the committee have, with a view to meeting the need for further assistance, submitted to us various recommendations, one of which is that Mr. T. W. Barry, a surveyor now temporarily employed in the Architect's department at 3*l.* 3*s.* a week, should be appointed on the permanent staff in the second class, at a commencing salary of 175*l.* a year.

While concurring in the views of the Building Act Committee that more help is required, we are of opinion that all questions relating to the transfer of assistants from the temporary to the permanent staff should, as far as possible, be dealt with at the beginning of each year in connexion with the annual revision of salaries and positions of the subordinate staff. We therefore think that the question of placing Mr. Barry on the permanent staff should be postponed until the beginning of next year."

A recommendation to the effect mentioned, and other recommendations, were agreed to.

The Boundary-street Improvement Scheme.—The Public Health and Housing Committee presented an important report with reference to this scheme, but its consideration was adjourned.

Another Large Asylum Contemplated.—The Asylums Committee reported recommending the purchase of 140 acres of land on the Baldwyn's Park estate at Wilmington, near Bexley, Kent, at a cost of 175*l.* per acre. On this land it is proposed to build a sixth asylum for 1,000 or more pauper lunatics belonging to the County of London. The consideration of the report was adjourned for a week.

After transacting other business, the Council adjourned shortly before 7 o'clock.

Books.

The Institute of Chartered Accountants in England and Wales; Moorgate-place, E.C. By JOHN BELCHER, Architect. London: B. T. Batsford, 1893.

THIS is a folio book of illustrations and descriptions of a building which well merits such a special commemoration, as it is almost unique among modern business buildings in the City for the amount of artistic care which has been bestowed upon it, and the originality of its architectural design and decorative treatment. The building has been more than once illustrated in our columns; we gave the plans and elevation and sections at the time the design was completed, and subsequently a reproduction of the large elevation which figured in the Royal Academy Architectural Room last year; and we have reproduced in the present number two of the plates from this volume.

The photographs give one or two general views of the exterior and a number of the external details taken separately. The architectural style may be described as consisting of Renaissance forms treated in a very free and original manner. One of the best decorative details consists in the application of the winged terminal figures, rather flatly treated, which rise from the capitals of the rusticated piers of the ground story, and break the line of the string-course under the first floor windows. We have seldom seen sculptural and architectural detail better harmonised than in this feature. The boldness of the detail is perhaps carried a little too far in some portions; for instance, the heavy rustication of the jambs of the upper windows produces rather a confusion of line at this part, and moreover weakens the expression of the similar rustication in the ground story piers. Boldness, however, is a rare fault in street architecture in the City, and certainly a better one than flatness and feebleness. The interior is more quietly treated than the exterior, but in a dignified manner; though we do not quite like the little freak, as it may be called, shown in the interior of the library, in which the balustraded gallery is carried across the room in the shape of a bridge; it does not seem quite to belong to the other architectural detail, and cuts rather awkwardly across the line of the large columns. This, however, is the only detail of the interior, as shown in these photographs, which we feel inclined to criticise; and this, again, is at least original and piquant; we only think its piquancy rather out of place in regard to the general style of the room.

The external frieze of sculpture (we may call it a frieze though it does not occupy the position of one, being beneath the upper tier of windows) is by Mr. Hamo Thornycroft, and consists of a long range of bas-relief figures, 140 ft. in total length, consisting of allegorical figures representing "Arts," "Science," and "Crafts," "Education," "Commerce," "Mining," railways, building crafts, &c., &c. This is one of the most important recent applications of sculpture to practical architecture, and is an excellent piece of work, even if we cannot quite see its relation at all points to the business of chartered accountants, unless as a suggestion that accuracy in accounts is the backbone of all occupations, which may be a wholesome moral. However, any excuse is good enough for adding artistic decoration to a building, and making it a thing of beauty and interest. The sculptural details of another class, such as the admirable terminal figures already mentioned, are the work of Mr. Harry Bates.

It would have been of interest if some statement as to the total cost of the building had been given.

The whole makes an illustrated volume which ought to be of considerable interest to architects and to those who care about the improvement of modern City architecture; and it is to be hoped it may furnish the stimulus of example to other wealthy City corporations who are thinking of building, to go and do likewise.

The Mechanics of Architecture. By E. WYNDHAM TARN, M.A. London: Crosby, Lockwood, & Son.

MR. WYNDHAM TARN has added, by this volume, to the debt of gratitude which is owing to him by architectural students for the many valuable works which he has produced for their use. Very few architectural students or architects have what is called a mathematical mind, and it is therefore a distinct advantage to professional literature to have a work containing, in a small compass, the knowledge that every architect ought to possess of those branches of mechanics that immediately concern building. Our author claims in his preface "to give, in as simple a form as possible, an outline of the principles upon which all good construction should be based," but he has hardly, perhaps, sufficiently discounted the depth of the mathematical impotence of the bulk of young architects, the majority of whom, if they ever possessed any real knowledge of algebra or mechanics, or of mathematical methods of thought, have contrived to lose that knowledge before they realise that an acquaintance with mechanics should form part of every architect's intellectual equipment. The definitions of the varied forms of "force" which operate on building construction are hardly sufficiently clear from a somewhat loose fashion of writing. Thus, without more carefulness than we fear our author's words are likely to receive, it is not quite clear that it is not meant that "force of cohesion" causes "crushing stress" or "tensile stress." The explanations of the theory of the composition and resolution of forces, and of the triangle and polygon of forces, are very clear and easily to be understood, but we

regret that the arrangement of the diagrams is not quite perfect. For example, the incorrect alignment of figs. 9 and 10 renders their comprehension less easy, whilst the printing of dependent diagrams like figs. 12 and 13 on two sides of the same leaf is troublesome, and this is particularly unfortunate, as the thorough comprehension of the principle of the polygonal frame is of extreme importance to enable the student to make use of the valuable account of stress diagrams further on.

On p. 144, in the introduction to the working of stress diagrams of roofs, there are one or two points that would benefit by a little more explanation. It is not quite clear if 2 W is the load on a roof truss (king-post), and w is the load on the tie-beam, why the reaction of each support is $W + \frac{w}{4}$ instead of $W + \frac{w}{2}$. In drawing the stress-diagram for this roof, explanation should be added why certain dimensions on the vertical line are measured from particular points to represent certain forces. Despite, however, some few instances of this kind, the book is a very useful and helpful manual of architectural mechanics, and really contains sufficient to enable a careful and painstaking student to grasp the principles bearing upon the majority of building problems, including such subjects as domes, spires, vaulting and hammer-beam roofs, the consideration of which is sometimes ignored in books professing to deal with the mechanics of architecture.

Dangerous Structures. By GEORGE H. BLAGROVE. London: B. T. Batsford.

As a "handbook for practical men," the subtitle given, there is little in this small volume that would add to the knowledge already gained from experience, whilst for students, the value of the work is diminished by some rather doubtful advice. For instance, it is claimed that concrete under footings act as a lintel, but this, though true in some instances, rather begs the question when the concrete is inserted in short lengths beneath existing walls, or as it usually called, in underpinning. The use of expansive concrete again needs much care or danger may ensue. In using buttresses to strengthen a failing wall, it should be noted that a good longitudinal tie in the wall itself is absolutely necessary, and the practice is rather in conflict with what is rightly pointed out in speaking of the support of roof trusses. Some of the diagrams are defective, thus in fig. 5 "the point G" referred to is not marked, and in fig. 8 there are two G's and no B, as mentioned. Such carelessness in editing lessens the value of the book to a student, whilst those who can understand the diagrams despite their faults do not need the book. The tables of strength of beams and struts are a premium on laziness, and fill up space that might be more usefully occupied.

Correspondence.

To the Editor of THE BUILDER.

ARCHITECTS' CHARGES.

SIR,—The question of architects' charges having been raised, permit me to state what I believe to be a correct view of the position.

1. The "Schedule of Practice and Charges" issued by the Royal Institute of British Architects sets out the charges for professional remuneration, usually and properly made, under ordinary circumstances, and in the absence of any agreement to the contrary. It is presumed to represent accurately the custom of the profession in such matters, and to supply a satisfactory standard for such remuneration.

2. Every member of the Institute is at liberty to assess the value of his services at any amount he may think proper; but he must secure himself by agreeing to terms with his client before undertaking his commission.

3. If he undertakes work at rates below the ordinary custom, he must not do so to the detriment of a professional brother by underbidding him.

4. That in all cases previous agreement with the client is desirable, and when deviation in excess of the Institute Schedule is contemplated is absolutely essential. This question of previous agreement has been fully considered in the R.I.B.A. "Journal of Proceedings," Vol. VII. (1891), pp. 161-164: "Architect and Client—written agreements."

In short, I am not aware that, except as regards professional honour, the Institute controls, or could control, its members in the matter of charges, but leaves them at liberty to charge "what they think fit, and in their own way"; but it does by the Schedule of Practice and Charges distinctly declare what is the established practice of the profession.

ARTHUR CATES.

7, *Whitehall Yard, S.W.*, July 18, 1893.

THE GLASS PAINTING TRADE.

SIR,—Our attention has been called to a report of a meeting of the "Glass Painters' Union" which was published in your issue of June 24. In this report we notice that various allegations were made with regard to our methods of work, which were not strictly correct, and which are calculated by their exaggeration to mislead public opinion.

In the first place we wish to state that no strike or "lock out" whatever has occurred in our workshops: we have simply discharged two men, "ornamentists" (one being a "unionist" the other a "non-unionist") for their incapacity, just as any other firm would have done in similar circumstances. Now the main objection to the system of "piecework" in our shops, as alleged at the meeting, seems to be that the wages of these "ornamentists" had been, they said, so reduced as to bring them down to the "sweating" level of 6d. per hour, or, in fact, to starvation wages.

On examining our wages-sheets for the last six months we find that from December 1, 1892, up to June 1, 1893, the average weekly wages of these two men amounted to *1l.* 14s. 5d., whilst their "time" shows an average of seven and a half hours per day, at an average rate of nearly 10d per hour.

It should be noted that this average of pay is inclusive of all the holidays of Christmas, Easter, and Whitsuntide, so that this rate of pay is somewhat higher per hour than is stated.

As regards the specific charges of alterations and reductions in the prices of work, after they were executed, such assertions are not founded on facts; for in each of these cases which were cited, these two ornamentists were plainly told beforehand that in consequence of reductions in the prices to our clients, the costs of production would have to be reduced (as well as the elaborate style of the ornamental details on which they worked), and knowing this, they accepted these works at reduced prices. This can easily be proved by competent witnesses in the workshops.

The class of ornamental work which was executed by these men was not up to the standard required in first class designs; such type of work as theirs was could be done quite as well by the apprentices, and it must be clearly understood that these "ornamentists" who were discharged were not "artists" in the true sense of the word, such as the "figure" painters are. Their places are now filled by competent hands, in fact one man can do as much as the two did, and in a superior style, whilst earning the same wages (and even more now), with mutual advantage to himself and to us.

Any advances in prices, such as were so unfairly quoted in the report of the meeting, were made by our manager to these men, solely with the view of helping them over the change of system from "day" work (which was a ruinous one to us) to "piece" work, and this change was carried out in a kindly spirit, but such concessions are now turned into accusations against us.

We can only say now that the work which is produced in our workshops under our present system is far superior to that which was formerly done under the "time wage" system; and as we find that this present mode of working is of advantage to our men and of satisfaction to ourselves, we do not see any reason for altering it.

COX, SONS, BUCKLEY, & CO.

DRAWINGS OF OLD LONDON.

SIR,—In your report of the proceedings of the Royal Archæological Institute on Tuesday, the 11th inst., the writer has kindly mentioned my drawings of Old London, which are still being exhibited at the Guildhall Art Gallery. If he had also done me the honour of looking over the enclosed catalogue, which I wrote to accompany these drawings, he would have seen that they are not intended as a series of architectural exercises, but as a contribution to the history of London. With few exceptions, I have selected buildings which were more or less in danger of destruction, and I think that in every case my subject is either picturesque or historically interesting, or both. To take typical instances, the chief reception-room at No. 10, Downing-street is not beautiful; but it has been associated with most of the leading English statesmen for about a hundred and sixty years, the Chapter Coffee-house was perhaps even ugly, but it was interesting from the fact that distinguished people had frequented it, and it is now destroyed. Various old taverns and almshouses were quaint and illustrated a past phase of life, while I think every unprejudiced person must admit that such buildings as the "White Hart," Sir Paul Pindar's, and Scarsdale House, were for every reason worthy of record. Of the sixty-six specimens named in the catalogue, about one half have either disappeared or are now condemned to demolition. PHILIP NORMAN.

*** Mr. Norman's catalogue, which he has enclosed, is a very interesting and useful memorandum of a number of old buildings in London, with notes of some of the historical and literary associations connected with them.—ED.

ANCIENT MONUMENTS IN THE CRYPT OF ST. JAMES'S, CLERKENWELL.

SIR,—Adverting to Mr. Chittenden's letter *ante* p. 32), I find against the chancel wall, north, a recumbent figure, partly draped, in a shroud, upon a modern base inscribed thus:

"Sir William Weston Knt. Lord Prior of the sixth or English Langue of the Order of St. John of Jerusalem died 7th of May 1540 and was buried on the north side of the chancel of the church of St. James Clerkenwell. This emaciated effigy sole relic of his splendid tomb destroyed on the demolition of the old church A.D. 1788 was in the year 1882 placed near its original site by Lieut. Colonel Gould Hunter-Weston of Hunterston co. Ayr."

At the demolition Weston's leaden coffin was found a few inches below ground: the body had been embalmed: no cere-cloth or habit of his order enfolded the skeleton, which measured 5 ft. 11 in. Hatton in his "New View" (1708), and Weever describe the tomb; an engraving of it by J. and H. Storer is in T. Cromwell's "Clerkenwell" (1828). Other accounts say it was removed to Burghley by Sir Geo. Booth, a descendant, I presume, of George, Lord Delamere, and his wife, Lady Elizabeth, granddaughter of William, second Earl of Exeter; but the effigy was put into the crypt. Hatton describes the monuments here of Ann (1651) and William (1661) Booth, children of George, Lord Delamere, and of Elizabeth (1653), widow of the second Earl of Exeter, residents in the parish.

The Rev. F. R. Keightley, Curate of St. James's, who has very courteously helped me in my inquiries, tells me they have not, to his knowledge, a memorial of any other prior; the effigy was found in the crypt some years ago; and the crypt is cleared of its former contents.

Weston, who died on the day of his surrender, was not, as he is commonly styled, the last Prior of St. John's, for in 1557 Mary appointed Sir Thomas Tresham, buried (1559) in St. Peter's, Rushton—see Bridges' "Northamptonshire" by Whalley, for his tomb and effigy there. The last præ-Reformation Prior of St. Bartholomew's was Robert Fuller, Abbot of Waltham Holy Cross, succeeding Bolton in 1532. I am authoritatively informed there is no memorial to Fuller in St. Bartholomew's. Of other monuments cited in the *Builder* of October 2, 1858, the positions have been changed. Burnet's (by R. Hartshorne) is on the north wall of the south-west staircase (his leaden coffin was discovered on September 9, 1788, near the altar), Mrs. Partridge's is on the south wall of the north-west staircase, and Wood's on the chancel wall, south, close to the Countess of Exeter's. The brass of John Bell, Bishop of Worcester, 1539-43, buried in St. James's in 1556, was recovered and replaced nine years ago.

July 13, 1893. W. E. D.-M.

NORTH'S APPLIANCE FOR HOLLOW WALLS.

SIR,—I have to thank you for your favourable notice in this week's issue of your valuable paper of my patent for keeping hollow walls clear. You mention that the invention is only applicable when ties are *not* used; this is not so, as the appliance is placed on top of the bonding bricks or ties and taken out, emptied, and replaced on the next course of ties, and so on to the top, *i.e.*, a similar operation as occurs with battens or hay-bands.

Trusting you will do me the favour of stating this important point, as the present notice would be likely to give one a misapprehension of the usefulness of my patent, ED. NORTH.

P.S.—The appliance is in use on the extensive barrack buildings now being erected for the War Department at Portsmouth, where bonding bricks every fourth course are being used. E. N.

GRAY'S INN.—Some alterations of a rather extensive kind are in course of being carried out at Gray's Inn for the Benchers, under the superintendence of Mr. Isaacs, Surveyor to the Society. What has hitherto been the Steward's Office, underneath the (old) library, is being converted into a "Benchers' Parlour," with a new entrance on the south side into the hall, and the joists and flooring of the library above are to be relaid. The Steward's offices are transferred to the ground floor of the library (new) buildings, overlooking Gray's Inn-road. We understand that the idea of building a new chapel in the gardens is, for the present at any rate, relinquished. Meanwhile the interior fittings of the chapel are to be rearranged in order to render it more convenient for Divine service. This will be good news for the rooks, some of whom returned after the "scare" caused by the building of the students' examination shed.

The Student's Column.

GEOLOGY IV.

THE IGNEOUS ROCKS (CONTINUED).

Volcanic History of Britain.

VOLCANIC energy has been rife throughout all geological periods, though, so far as the British Isles are concerned, the action has been spasmodic. We have evidence of this in the aqueous rocks: first, by the occurrence of lavas and ashes sandwiched between certain of them; secondly, by the intrusion of dykes into them; and thirdly, by physical peculiarities. As might be anticipated, the Lower Palæozoic rocks give abundant evidence of volcanic activity during their formation. In Britain, for instance, a great portion of Snowdon, Aran Mowddwy, and Cader Idris are constructed of materials erupted from volcanoes of Primary age, some of which were probably submarine. On ascending Snowdon several layers of volcanic tuffs and ashes are seen interstratified with beds of Bala age containing many fossils. It must not be imagined, however, that the Welsh mountains alluded to owe their present contour to the accumulation of volcanic products in the same sense, for instance, as do Etna and Vesuvius. In the case of the latter their shape has been very little interfered with, but the old Silurian volcanoes of which we speak have undergone many vicissitudes, and the present contour of the mountains in which they are found has little or no connexion with their volcanic origin. This remark applies generally to all but the later Tertiary eruptions.

The Old Red Sandstone period was an epoch of continued volcanic activity in parts of Scotland; and the same districts were much disturbed during Carboniferous times from the same cause. In the south-west of Scotland a few vents are found of Permian age; and the New Red Sandstone of the south-west of England likewise gives evidence of contemporaneous eruptions. But probably the most striking volcanoes (by reason of their comparative freshness) in Britain, are those in Mull and adjacent islands, and in Antrim, which are of early Tertiary age. Every one knows the Giants' Causeway and the Isle of Staffa, where grand examples of the structure of lavas on a large scale may be seen.

Thus we find that some of the aqueous rocks are much cut up by the intrusion of volcanic dykes; veins of igneous rock have bored their way through them, causing much disturbance. The effects on weathering of the combined rocks frequently produce characteristic features in the landscape.

Age of the Plutonic rocks.—It is not always easy to determine the age of plutonic rocks; from their nature they are not usually very intimately associated with the aqueous, and thus their precise chronology is frequently uncertain. So far as the British Isles are concerned they chiefly belong to the Archæan and Primary epochs, though some are Tertiary. They mostly occur as large masses rising up through the aqueous and surrounding rocks, which show evidence of having been baked along the points of contact. Occasionally pieces of the latter have been broken off, and are found enveloped by the igneous rock, which throws veins into the adjacent strata. If the geological age of the rocks into which the veins have been injected can be determined, and they usually can, we are presented with a certain amount of correlative or negative evidence as to the age of the plutonic rocks. Thus, assuming the latter gave off veins into the Old Red Sandstone, we should know that it was not so old as those strata. And if the same plutonic rocks, having been denuded, were subsequently partially covered up by strata which fossils demonstrated to belong to the Triassic, we should know that they were intermediate in age between the Old Red Sandstone and the Triassic. More than that it is not often possible to say.

THE METAMORPHIC ROCKS.

We have stated that metamorphic rocks have been formed by the alteration of both igneous and aqueous, and this was due to the exertion of enormous pressure, and in presence of great heat and chemical activity. How this was brought about we will now endeavour to explain. The student will understand that the cooling of the earth in its original state must have been accompanied by much disturbance, and great contraction in the size of its mass. It may be assumed that by the time the aqueous rocks commenced to be formed, the earth had practically settled down—it had contracted nearly as much as it ever intended to do. We know, however, that the earth is still cooling—it gives off more heat every year than it receives—and therefore it must to a certain extent be contracting at the present day. That it has continued so to do from the commencement of its existence, and, consequently, through all geological time, is practically certain. Indeed, we have evidence of it in the rocks, in the shape of mountain ranges, for the cooling of the body of the earth necessarily puckered its crust. During the elevation of these mountain ranges the rocks composing them were subjected to all kinds of strains, and marvellous pressure must have been exerted. Now, we know that moving pressure produces heat, and we are also aware that rocks can be melted by great heat. It is clear then that igneous rocks may be partially accounted for in this manner. By far the larger proportion of the rocks concerned in the elevation of our great mountain ranges, however, although subjected to enormous heat, never quite melted, but were so severely handled that a total change in their character took place, and they formed what are known as metamorphic rocks. Slate and crystalline limestone (statuary marble) are good examples of such rocks.

We have given some idea of the origin of metamorphic rocks, and collaterally of mountain ranges, but they may be partially accounted for in other ways. The prime factor in their formation is pressure, which may be induced merely by the weight of the rocks themselves, in which case it has no connexion with the secular cooling of the earth, or of the strains resulting therefrom. Aqueous rocks may have become metamorphosed in the following manner. We know that they were laid down in water and are largely composed of sediment and *débris* due to the wasting away of the land, and also of the remains of organisms which lived and died in the water. Throughout untold ages this action has been going on, until vast thicknesses of aqueous rocks have accumulated. The weight of these is such that the lower portions of them are in the presence of conditions quite capable of producing metamorphism. Further, the increment of pressure (and of heat) due to the slow accumulation of the strata has produced stupendous strains by causing the rocks at some depth gradually to expand, and great earth movements were the result. From this, the student will observe that the daily deposition of sediment on the sea bottom is directly connected with elevation and depression of the land.

The actual change produced in rocks by metamorphism will be discussed in another article, but it may now be stated that the amount of that alteration depends very materially on the amount of the pressure, controlled by surrounding circumstances. In some cases the original character of the rocks has been totally obliterated, and the metamorphism seems to have so transformed them as to cause them to present considerable resemblance to some igneous rocks, thus constituting a transition between the two classes. In other instances the metamorphism has not been sufficient to effect such a great change, and although the strata operated upon have been much altered in character they still retain traces of fossils, sufficient indeed to enable them to be properly classified amongst the aqueous rocks.

Metamorphic rocks may be of all ages except the most recent, and although the oldest strata have, by reason of their greater antiquity, usually been affected more than the newer formations, this is not always the case. In this country they are almost entirely confined to the Archæan and Palæozoic epochs; but in the Alps, which received their final elevation in late Miocene or Pliocene times, and in other parts of the world, there are good examples of metamorphosed rocks of Tertiary age.

THE ÆOLIAN ROCKS.

Except, perhaps, in China, New Zealand, and parts of Africa, these rocks do not play a very conspicuous part in the formation of the earth's crust. They are familiar to us in this country, in Holland, Belgium, and the south-west of France, in the shape of large superficial beds of sand, situated not far from the sea-coast, and are known generally by the name of sand-dunes. They have been formed by the action of the wind, which has caught up the grains (often from the sea-shore) of which they are composed, and after blowing them some distance has permitted their accumulation. They may be described as shifting sands, and have much exercised the ingenuity of people to arrest their progress. They usually present a characteristic outline, sustain a peculiar vegetation, and, from their unique appearance, have frequently formed subjects for the artist's brush.

GENERAL BUILDING NEWS.

PUBLIC BATHS, HALIFAX.—On the 6th inst. the new baths erected by the Halifax Corporation at Woodside, Haley Hill, Halifax, were opened by Alderman J. Whitaker. The front block contains the first-class slipper baths for ladies' and gentlemen, with separate entrances, corridors, and waiting-rooms, with the ticket office placed between. Behind the ticket office is a large room for stores, &c. The caretaker's house is placed at the town end of the front block. The large swimming bath is behind this block, and is entered from both corridors by a short flight of steps. On each side of the swimming baths are the ladies' and gentlemen's second-class slipper baths. The large swimming bath is 75 ft. long and 36 ft. wide, with a depth of water of 3 ft. at the shallow end, and 6 ft. at the deep end. The walls and bottom are composed of concrete, faced with ivory-white glazed bricks in cement. The water in this bath is heated by steam by a process patented by Mr. Williams, one of the architects. The building enclosing the swimming bath is 90 ft. long and 54 ft. wide, and 21 ft. high to the square. The roof is carried by arched steel principals, on the top of which is a lantern light the whole length of the building. This main roof is continued over the second-class slipper baths on each side. There are eighteen dressing boxes on each side of the swimming bath, over which there is a gallery for spectators. There are staircases communicating to the gallery, both from the bath for the bathers, and from the entrance corridors for the general public. The laundry, with boiler house under, is at the low end of the site, attached to the main building, and connected therewith by a separate corridor. The main building generally is heated by steam. The baths were designed by Messrs. Horsfall & Williams, architects, Halifax, the successful competitors in a competition promoted by the Corporation, and have been carried out under their supervision. The total cost of the building, laundry fittings, &c. (exclusive of site), will be about 7,000*l*. The works have been carried out by the following contractors:—Thos. Pickles, Luddenden Foot, mason; Joseph Hanson, Claremont, carpenter and joiner; John Naylor & Son, Halifax, plumbing, glazing, and steamfitting; John Marshall, Hipperholme, slating and plastering; Murgatroyd Bros., Halifax, painters; Geo. Greenwood & Sons, Halifax, concreting; John Berry, Halifax, iron-founder; Handyside & Co., Derby, steel roof; W. H. Haywood & Co., Huddersfield, patent glazing. Mr. H. Wilson was the clerk of works.

FREE LIBRARIES, NETHERTON AND WOODSIDE, YORKSHIRE.—Lord Dudley laid the foundation-stones a short time since of two free libraries, situated near Dudley. The site of one building is at Woodside, while the other will be at Netherton, in the Market-place. The building at Netherton includes a public hall, 56 ft. by 36 ft., with a stage 36 ft. by 24 ft. There are dressing and retiring rooms connected with the main building by a corridor, and under the stage is storing space for scenery, &c. From the entrance hall a stone staircase leads to a gallery, which will hold from 250 to 300 people, the floor being able to accommodate about 700. There are ample exits in case of fire or panic. Adjoining this is a free library, consisting of a reading room and lending library, and there are also caretaker's rooms and places for providing teas, &c. There are also a fire station, three houses for married policemen, and two cells, and a shed for tramps. The style of the building is Queen Anne, and the material used is red brick with stone dressings. The cost will be about 5,600*l*. At Woodside the buildings comprise a lending library, reading-room, and recreation-room. There is also a retiring-room and a stage in the recreation-room, with fire station, two police houses and a cell. The cost will be about 2,800*l*. Mr. T. Grazebrook is the architect; Mr. D. Willetts, Old Hill, the builder of the Netherton Free Library and Public Hall; and Messrs. Webb & Round, Dudley, are doing the work at Woodside.

SCIENCE AND ART SCHOOLS, HIGH WYCOMBE.—The foundation-stone of the new science and art and technical schools was laid at High Wycombe on Monday, the 10th inst., by Viscountess Curzon, the wife of Viscount Curzon, M.P. for South Bucks. These new buildings are to be erected in connexion with the scheme of technical education in South Bucks, about one-third of the money being raised by voluntary subscriptions locally, and the total cost being about 2,400*l*. Mr. H. Flint, of High Wycombe, is the builder, and Mr. Arthur Vernon, of 29, Cockspur-street, London, the architect.

REBUILDING OF THE "ROCHESTER CASTLE," STOKE NEWINGTON.—The rebuilding of the "Rochester Castle," High-street, Stoke Newington, is nearly completed. The lower parts of the building are built of polished grey and red granite, and from the first floor upwards the main façade is of red brick with stone dressings. The sculpture work of the frieze has been carried out by Messrs. Harry Hems & Sons, of Exeter, who have also carried out the stone and wood carving of the building. Above the central gable is carved a crouched lion. The general contractor was Mr. John Anley, of Dalston-lane, West Hackney, and the whole of the works have been carried out from the designs and under the personal direction of Messrs. Crickmay & Sons, architects, of Parliament-street.

RESTORATION OF WESTON PARISH CHURCH, SOMERSETSHIRE.—On the 29th ult. Bishop Bromby re-consecrated the parish church of Weston, near Bath, which has been extended and restored at a cost of about 4,000*l.* The principal work has been the addition of a chancel and north and south transepts, which, like the old portion of the church, are in the Perpendicular style. New vestries, crypt, and organ chamber are provided. The church has been re-seated throughout with oak, with traceried bench ends. The gifts include a central panel of red marble for the reredos, with a figure in alabaster, representing our Lord in ascension, central lights for the stained-glass east window, and a brass eagle lectern, altar rails, and a light stone Perpendicular pulpit, with an alabaster figure of the Good Shepherd. The architect was Mr. E. H. Harbottle, of Exeter, and the contractors Messrs. Stephens, Bastow, & Co., of Bristol.

WESLEYAN CHAPEL, TOWCESTER.—The foundation stones of a new Wesleyan chapel and schools were laid at Towcester, Northamptonshire, recently. The new building will stand partly on the foundations of the old chapel. and will be in the Gothic style, built of stone partly from the old erection and partly from Duston quarries, rock faced. The dressings to windows and doorways will be of Bath stone. The new erections will include a schoolroom and two vestries, also a kitchen and heating chamber in the basement. The church will accommodate about 250 people. The schoolroom will be so constructed as to give an additional number of seventy when required. The architect is Mr. H. H. Dyer, of Northampton, and the builder Mr. Thomas Wheeler, of Towcester.

CHAPEL, ST. CATHERINE'S SCHOOL, BRAMLEY, SURREY.—On the 1st. inst. the foundation-stone of the chapel about to be erected in connexion with St. Catherine's School, Bramley, was laid by the Bishop of Guildford. The chapel will be about 24 ft. by 85 ft., and 45 ft. high. It will be of red sand-faced bricks (inside and outside), and the fittings will be of oak. There will be a chancel, nave, narthex, sacristy, and organ chamber. An arcade will extend across the narthex. The west window will be a circular stone one, and the other windows will be Gothic. There will be accommodation in the chapel for about 200 persons. The architect is Mr. C. H. Fowler, F.S.A., of Durham, and the builder is Mr. Bowman, of Stamford.

METHODIST CHURCH, WALTHAMSTOW.—A new United Methodist Free Church has just been opened at Walthamstow. Seating accommodation has been provided for 1,000 persons. The work has been carried out from the designs of Mr. J. Williams Dunford, of London, by Mr. F. J. Coxhead, builder, of Leytonstone, at a cost of 2,400*l.*

BAPTIST CHAPEL, BEDMINSTER. — Memorial stones of the new Baptist Chapel at East-street, Bedminster, were laid on the 3rd inst. The exterior of the building is to be of blue pennant stone with freestone dressings, and leaded windows filled in with tinted cathedral glass. The interior walls are to be stuccoed, and the open roof will be panelled with timber. There are to be galleries at the sides and east end of the chapel, with ornamental iron front. Mr. W. H. Williams, of Bishopston, is the architect, Mr. W. Galbraith being the contractor.

NEW CHURCH AT PECKHAM.—The foundation-stone of the new church of All Saints', North Peckham (the Charles Cubitt Gooch memorial) was laid on Saturday last by Mrs. Gooch and her sons. The church will be in the Early English style in red brick and stone dressings with polygonal apse to chancel and morning chapel. Behind the western arcading a baptistry of octagonal form is planned. Under the south and north transept and chancel a groined and vaulted crypt is provided. The church is from the designs of Mr. Walter Planck, architect, of London.

CONGREGATIONAL CHURCH, TOTTERDOWN, GLOUCESTERSHIRE.—On the 12th inst., the foundation stone of the new building to be erected in connexion with the Wycliffe Congregational Church and Schools, Totterdown, was laid by Mr. Albert Spicer, M.P. The style of the building is Romanesque, the walls being of pennant with freestone dressings, and the roof covered with Poole's patent tiles. The principal entrance will lead by a staircase to the church, which can also be approached on the level. The church measures 72 ft. by 40 ft., and is 30 ft. high. It will have a gallery at each end, that behind the rostrum being intended for the organ and choir. All the woodwork in the church will be of pitch-pine, and the windows are to be glazed with cathedral leaded lights. Between the church (which will seat 700) and the school are the minister's vestry and a gentlemen's cloak room. These are approached by a separate entrance, which also gives access to the choir gallery and school galleries. The school, which measures 40 ft. by 36 ft., and is 30 ft. high, is semi-octagonal in shape, and, with the gallery, which runs all round except at the rostrum end, will seat 400 adults or 500 children. Opening out of the entrance lobby is a gentlemen's lavatory, and on the other side a kitchen, with accommodation for tea meetings. In the basement is a suite of rooms. The lecture hall measures 30 ft. by 20 ft., and will seat 100. By another entrance is the infant school, with gallery for 100. The other rooms on this level are two class-rooms, each 20 ft. by 13 ft., and two 15 ft. by 13 ft. All these rooms have solid block floors. The whole building will be heated by hot water, and ventilated by fresh-air inlets in the walls and exhaust shafts in the ceilings, connected with air-pump ventilators. The general contract is in the hands of Mr. John Perkins, the heating is by Messrs. Skinner and Board, and the gas-fittings by Messrs. Cann & Co., while the architect is Mr. J. H. LaTrobe, of Bristol. The cost will be about 3,300*l.*

NATIONAL SCHOOLS, CHARFIELD, GLOUCESTERSHIRE.—On the 12th inst., the corner stone of the new National Schools, Charfield, was laid. The building will be of native stone dug from the glebe, the same that the church is erected with. The style will be Early English, similar to the church, with worked facings. The schools are from plans prepared by Mr. W. Wood Bethell, architect, of Westminster, and are intended to accommodate ninety children. There will also be a separate building for the master's house.

BAPTIST CHURCH, MALVERN. — On the 13th inst. the memorial stone was laid of the New Baptist Church at Malvern. The church is 48 ft. in length, running parallel with Abbey-road. On the ground floor is a large lecture hall and a kitchen. The church is to be built in a late period of the Early English style, of Cradley stone with Bath stone dressings. The roof is open timbered. The architects were Messrs. Ingall & Sons, of Birmingham, and the builders Messrs. J. Smallwood, of Henley-in-Arden.

PROPOSED HOSPITAL WING, ST. HELENS, LANCASHIRE.—We learn that the committee of the Cottage Hospital, St. Helens, are about to proceed with the erection of a new wing to accommodate thirty-two beds, giving each patient 9 ft. of ward space. Mr. James Gandy, architect, of St. Helens, has prepared plans. The approximate cost is over 2,000*l.*

CONCERT HALL, LLANDUDNO.—On the 1st inst. a temporary concert hall, which has been erected by the Victoria Palace Company, Limited, was opened at Llandudno. The building, which occupies a site near the Hydropathic establishment, has been erected from plans of Mr. G. A. Humphreys, architect, of Llandudno, and measures 120 by 180 ft.

CAPITAL AND COUNTIES BANK, EAST GRINSTEAD.—New premises for the Capital and Counties Bank have just been erected at East Grinstead. The building is three stories in height above the basement, and is situated in the High-street. From the pavement level to a little below the first floor windows the material is wholly of local stone from the Honeywell quarries. On the right of the building is a semi-circular-headed doorway, with moulded polished mahogany entrance door, and to the left are three large windows. Four windows, divided with stone mullions and transom, occupy the first floor story, which is crowned with a stone cornice. The upper part is designed with a shaped gable in the centre, with dormer windows and balustrades on each side. The bank is about 25 ft. by 23 ft. Here, as in the vestibule, the public space is paved with marble mosaic, while the remainder is laid with solid wood-block flooring. The counter front is of polished mahogany. The manager's room leads out of the bank. The basement, which is built of white glazed bricks, is approached from the clerks' enclosure of the bank by a flight of stone steps, and is occupied by a strong room of about 14 ft. by 12 ft. The manager's residence consists, on the ground floor, of a dining room, conservatory, kitchen, and the usual domestic offices. On the first floor, which is approached by two staircases, are the dining room, morning room, nursery, principal bed room, bath room, linen cupboard heated with hot water, and other domestic conveniences. On the top floor are other bed rooms and store rooms. The building has been under the personal supervision of the architect, Mr. H. Edmund Mathews (of the firm of Messrs. J. Douglass Mathews & Son), of London and East Grinstead. The contractors for the work are as follows:—General contract, Mr. J. Tooth, East Grinstead; bank fittings, Mr. C. Rice, East Grinstead; painted glass and lead lights, Messrs. Kelly & Co., Finsbury, E.C.; gas fitttings, Messrs. Wentworth, London, E.C.

SANITARY AND ENGINEERING NEWS.

MANCHESTER SHIP CANAL.—A further advancement is about to be made towards the purification of the Manchester Ship Canal by the purification of the sewage now flowing in a crude condition from the district of the Crompton Local Board. On the 4th inst. Mr. Frederick H. Tulloch, one of the Local Government Board Inspectors, held an inquiry at the offices of the Crompton Local Board, Oldham, with reference to the borrowing of loans amounting to 12,390*l.* for sewage purification works, public offices, and cemetery purposes. Mr. Mills, the Surveyor to the Board, explained the various purposes for which the loans were required, and stated that they had made provision at their sewage works to purify 225,000 galls. of sewage per day, having three precipitation tanks each of 75,000 galls., and eight small polarite filter-beds. It was given in evidence that the effluent from the polarite filters would be better than that obtained by land treatment. It was stated that by the use of the International process half the quantity of land only that was at first decided on will now be required.

HEATLEY DRAINAGE, CHESHIRE.—The general contract for the above work has been let to Messrs. Worthington & Pownall, of Manchester, and the contract for gas-engines, air compressors, and Shone's ejectors to Messrs. Hughes & Lancaster, of Westminster. Mr. G. Herbert Bayley, A.M.Inst.C.E., Lymm, Cheshire, is the engineer.

FOREIGN AND COLONIAL.

FRANCE.—The jury of the competition opened for the decoration of the Salle des Banquets of the Hôtel de Ville have awarded the first premium to M. Georges Bertrand, who is to receive 50,000 francs for the execution of three ceilings and eight door headings. The second premium has been awarded to M. Prouvé, and the third to M. François Lafon. M. Bertrand, who is a pupil of Bonnat, was the author of a fine picture entitled "Patrie," much remarked in the Salon of 1889, and which has been popularised by engraving and photographs. —— The statue of Claude Chappe, which was inaugurated at Paris on the 13th, is the work of M. Ernest Damé. The pedestal was designed by M. Farcy, architect.—— The municipality of Bry-sur-Marne has opened a subscription to erect a monument to Daguerre, who died in this small town in 1891.——M. Coquart, Guadet, Ginain, Deslinières, and Paul Sédille, have been chosen as the jury to decide on the designs for the rebuilding of the Opéra Comique. Eighty-four designs have been sent in, and are now exhibited at the Palais de l'Industrie.—— The "Société des Gens de Lettres" proposes to erect a monument to the memory of Guy de Maupassant.——The "Société Lorraine des Amis des Arts" is to open its thirtieth exhibition on October 29, to remain open till December 4.—— The Minister of Public Instruction has just opened, at Pau, a new theatre and a new Lycée for girls.——The Art Society of Besançon has just opened its exhibition of painting and sculpture. —— An interesting art exhibition is open at Augoulême, and is a good deal spoken of.——The large picture by M. Roll, "Le Centenaire des États Généraux," which figured this year in the Champ de Mars Salon, has been placed in the Salle des Gardes of the Museum of Versailles, in place of the "Sacré" of David, recently removed to the Louvre.——On the occasion of the National Fête on July 14, the Government conferred the decoration of the Legion of Honour on M. Damoye and M. Quost, painters; on M. Raoul Verlet, sculptor; and on M. Charles Errard, architect, of Marseilles. M. Errard is the author of some important works on the Renaissance monuments in Rome and on the Romanesque architecture of the South of France.——M. Pottier, architect, of Villars-Cotterets, has obtained the first premium in the competition opened by the Town of Neuilly-Saint-Front for the construction of a Hôtel de Ville. —— M. Hippolyte Stupuy, formerly a member of the Municipal Council of Paris, has been appointed curator of the artistic collections of the Municipality of Paris.

BERLIN.—The full-sized model for the equestrian statue, which should be the most important feature of the national monument to the deceased Emperor William, is just completed. The deceased Emperor is shown mounted on a charger led by an angel of peace; his attitude is dignified, and the likeness a good one. The casting in bronze will take over a year, but there is little doubt now that the monument will be ready, as specified by contract, in March, 1897. Herr Halmhuder, who was selected by the Emperor to design the architectural surroundings on the "Schlossfreiheit" site, is making rapid progress, and is having full-size models made of his part of the work.——The "Opernplatz," which would have been a popular site for the national monument, is now to have a memorial to the Empress Augusta. Professor Shaper will probably be the sculptor, if the Emperor approves of his designs. The architectural surroundings and mouldings are to be put in the hands of an architect.—— The list of pictures bought by the National Gallery at the International Art Exhibition has been published. All the works selected are by German artists. ——The Prussian Royal Academy Schools closed their session with the usual prize-day. There were 260 students this year.—The first prize for class work (30*l.*) was taken by the painter, Ernest Liebermann. ——The new Berlin Waterworks Extension at "Mueggelsee" was opened on Thursday last. The Stralau Waterworks will now be able to diminish their supply of water by 30,000 cubic mètres a day, and there will hence be more time for filtration. The daily supply in Berlin averages 150,000 cubic mètres. ——Besides the numerous Lutheran churches which are being built, several are being erected for the Roman Catholic congregations. One of these, the St. Sebastian Church, built to hold 4,000, according to the plans of Herr Hasak, has just been consecrated. The cost of the building was about 26,000*l.* ——At a competition for the design of a large "high" school for Frankfort no less that 104 candidates sent in drawings. Herr Karl Frobenius, of Charlottenburg, near Berlin, took the first premium.——The late Mr. Henry Gill, whose life was nearly entirely devoted to the Berlin Water-

works, is to have a monument erected to his memory at the new Mueggelsee Station.——Reg. Baumeister Wilhelm Moeller, who had just been commissioned to erect the new Provincial Museum in Berlin, has suddenly died at the age of forty. He had taken the first premium in the Museum Competition last year.

COBLENTZ.—It has been decided to commission Herr Bruno Schmitz with the execution of a memorial monument to the late Empress Augusta. Professor Moest, of Carlsruhe, is to do the sculptural parts.

THE LIGHTING OF BOMBAY.—At the last meeting of the Standing Committee of the Bombay Corporation the contract with the Bombay Gas Company for lighting the city was continued for another year, from July 1, on the present conditions. The Municipal Commissioner stated that it was intended to make during the monsoon a considerable experiment with the Welsbach burner, with a view to ascertain whether it can stand the vicissitudes of rain and wind. A large number of burners will be affixed to the existing lamp-posts in Church Gate-street in the direction of the railway station, and along the Esplanade-road, where wind and weather will have free play in unbroken force. The experiments which have been made in the fort during the last few months have been very successful, the illuminating power being nearly doubled, with a considerable saving of gas. The heavy rain, which fell within the last week or two, accompanied by high wind, had no injurious effect on the burners. The economy of gas is very great—about two-thirds of the amount consumed in the old burners of the same size sufficing to give about double the light. The Welsbach burner is being extensively introduced into places of business and private houses. The amount of heat evolved is much less than that thrown off from the ordinary gas-burner.—*Indian Engineer.*

MISCELLANEOUS.

THE BRITISH SCHOOL AT ATHENS.—The Archbishop of Canterbury presided on Wednesday afternoon at the annual meeting of the British School at Athens, which was held in the rooms of the Society of Antiquaries, Burlington House. The attendance was unusually large, including Sir Edmund and Lady Monson, Lord Lingen, the Vice-Chancellor of the University of Cambridge, Mr. Edmund Egerton, British Minister at Athens, Professor Jebb, M.P., Mr. F. C. Penrose, the Provost of Oriel, Professor Clifford Allbutt, Mr. Bywater, Professor Percy Gardner, Professor Joseph Mayor, Professor Alex. Kerr (of Madison University), Mr. Ernest Gardner, the Director of the School, Mr. Walter Leaf, Dr. Sandys, Dr. H. A. Holden, and Mr. George A. Macmillan, the hon. secretary. The secretary, at the Chairman's request, read the report, which stated that the year just ended was rather one of quiet progress than of sensational achievement, that the number of students admitted or re-admitted had been fully up to the average. The work at Megalopolis was this year carried to a completion under the superintendence of Messrs. Bather & Benson, by the clearing out of the Thersilion. This very interesting building and the theatre now presented great attractions to all visitors. No further site for excavation had yet been decided upon, but towards the end of the season a preliminary trial was made on the site of Aegosthena, at the extreme east corner of the Corinthian Gulf. Though little was known of this city in ancient times, the extant walls, which presented a remarkably perfect example of the fortification of probably the fifth century, sufficed to show that it was a place of no little importance. The School had, as in former years, been visited by many English travellers, and had been found of practical value in supplying them with information and guidance. Mr. Egerton, the British Minister, and other members of the Legation had shown a particularly active interest in the work of the School, both in Athens and in other parts of Greece. The relations of the School with the other foreign institutes in Athens and with the Greek archæological authorities continued to be most friendly. The committee once more urged upon all who were interested in the matter to use their utmost efforts to secure either substantial donations or annual subscriptions towards the support of the School. The report was adopted.—(Abridged from the *Times*.)

ANNUAL DINNER, MASTER BUILDERS' ASSOCIATION, LEICESTER. — The annual dinner of the members of the Leicester Master Builders' Association was held on the 13th inst. at the Bull's Head Hotel. Mr. D. Garratt (Messrs. Clark & Garratt), President of the Association, occupied the chair, and was supported by the Mayor of Leicester (Alderman J. Underwood) and others. Mr. G. Hewitt, Vice-President, having proposed the toast of "The Mayor and Corporation," and the Mayor having replied, Councillor Sawday proposed "The Leicester Master Builders' Association," and congratulated them upon their society. The President, in responding, said that three years ago they formed the Association, and their motto had been, "Defence, not defiance," and they would always try to act up to that principle. They had had a very successful year since the last anniversary. The Association had become affiliated during the year with the National Association of Master Builders. Mr. E. G. Mawbey, Borough Engineer, gave the next toast, which was "The Town and Trade of Leicester." As showing the amount of work done lately he had found that in the year and three-quarters since the borough extension no less than 3,600 plans had been sent in for houses, other buildings, and streets. Of these nearly 2,000 were for dwelling-houses, 80 for factories, warehouses, and workshops, and 57 for new streets. He thought that was proof of the prosperity of the town. He might mention also that during the time the labour bureau was opened last winter, when 700 men were registered for work or relief, only about 20 artisans of the building trade were enrolled, besides the painters. Mr. H. T. Chambers, J.P., having replied to the toast, Mr. Hardington proposed "The Leicester and Leicestershire Society of Architects." Councillor Sawday and Mr. J. Wigg responded to the toast, which was followed by others during the evening.

ANNUAL OUTINGS.—The employés of Messrs. Thomas Gregory & Co., builders, &c., Clapham Junction, on Saturday last journeyed to Hastings, that place having been selected for the enjoyment of their annual outing. The party consisted of over a hundred, further augmented by detachments arriving later on from various outlying works at Orpington, Farnboro', &c. The arrangements had been left in the hands of Messrs. Downs, Tucker, and Easter, assisted by a committee. At twelve o'clock the party sat down to dinner at the Central Hall, Memorial-place, by Messrs. W. & A. Newberry, to which full justice was done. At the conclusion of the dinner, the usual toasts were given; that of the "Firm" being received with musical honours. The party then scattered over the town, many taking advantage of the splendid weather to enjoy a sail. ——A large gathering of employés connected with the works of Mr. Frederick Britton, contractor, Highbury, took place on July 8, at Elstree, Hertfordshire, in celebration of their fifth annual bean-feast. Breaks were requisitioned for the day, which proved enjoyable to all.——On Saturday, the 8th inst., the *employés* of Messrs. Vaughan & Brown, of London, held their annual outing. Starting at 9 a.m. in brakes, they drove to the "King's Head Hotel," Egham, where dinner was served; after which, the party dispersed, some for boating on the river, others for Virginia Water and Windsor Great Forest, all assembling soon after 7 p.m. for the drive home.

MATHESON & GRANT'S ENGINEERING TRADES' REPORT.—Messrs. Matheson & Grant's report for the past half-year says that the decline in trade during 1892 culminated in the Spring of this year, but since that time there have been signs of recovery in many branches, and this improvement seems likely to continue and extend. The falling-off in the demand for all kinds of engineering material has been the more marked because of the peculiar combination of causes. Enterprise in South America had already been arrested by the failures of 1891-2, when the financial difficulties of Australasia reduced greatly the purchasing power of all the Colonies and developed into the bank failures of the present year. Since then Eastern trade has been embarrassed by the uncertainties of the silver question, which cloud the future. The metal markets have been and still are more unsettled than for many years past. The coal trade is in a most unsatisfactory condition, alike to the colliery proprietors and the consumers. At all previous times of depression the cost of getting coal has been reduced to meet the lessened demand, but at present colliers' wages, which have been augmented 40 per cent. during the last four years, still remain at their high level, out of proportion to the earnings in all other trades. Steel makers, engineers, and all other large consumers of fuel look to a reduction in the price of coal as absolutely necessary to a resumption of profitable trade. Notices for lowering wages have been given throughout the country, and unless an agreement is come to within the next few days a serious and protracted strike is threatened. In France, Germany, and Belgium the relations between masters and men at the collieries are also strained, and the whole question of fuel supply is likely to influence the manufacturing industries of Europe for some time to come. Notwithstanding the reduced number of furnaces in blast, pig-iron continued to fall in price after January, till in March Scotch pig was selling at 40s. and Cleveland at 34s. per ton. Since then, values have tended upwards, a sure sign of improvement in the engineering trades. Prices now would probably be still higher, were it not that the uncertainties of the money market, both in Europe and the United States, restrict purchases for future delivery. During the last twelve months the prices of finished iron have fallen below the cost of manufacture if wear and tear of plant be reckoned, and there have been some failures among those who cannot meet these conditions. The supersession of rolled iron by steel in so many trades seems to have reached its limits; it is recognised that steel can be made more cheaply than puddled iron; and the purposes for which each is most suitable alone determine the choice. Public works at home and abroad have been restricted and retarded by the reluctance of capitalists to invest money in any kind of new enterprise. The only compensation to be hoped for by those who suffer by such restrictions is that, to judge by past experiences, the work to be done is accumulating for an early future. But beyond this, works started before the present dull times are still going on and are requiring material and plant of various kinds. South Africa is likely to be a good market for the engineering trades of this country, and if the present increase in gold production continues, the demand for railway and mining material will grow also. Leaving the British Colonies out of the question, Mexico, Brazil, China and Japan alone afford enough scope, but in all these there is the coming cloud of American competition.

REREDOS, BURGH ST. MARGARETS CHURCH, NORFOLK.—A reredos has just been added to Burgh St. Margarets Church, Norfolk. It is mainly built of alabaster and marble, and has been designed by Mr. E. L. Parsons, architect. The lower part is all of Caen stone with carved and diapered panels on either side of the altar. Above is a deeply-moulded and wide super altar of polished and veined alabaster. On this stands the reredos proper. There is a central panel, canopied, and carried above the line of the terminating cornice. In the centre, amidst crockettes pinnacles, rises the main gable, which terminates with a foliate cross, fashioned in white alabaster. The central panel is flanked by a double set of pinnacled buttresses, between which, on each side, are canopied niches, and standing upon ornamented bases are statues in the round, representing respectively the Blessed Virgin and St. Margaret,. These statues, like all the rest of the sculpture, are in white Castilino marbie. The central panel has a large sculptured figure of Christ rising from the tomb. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

MEMORIAL STATUE, LLANDINAM, MONTGOMERYSHIRE. — On the 9th inst. Mr. A. C. Humphreys Owen unveiled a statue of the late Mr. David Davies, the Welsh railway constructor, which has been erected in his native village of Llandinam, Montgomeryshire. The statue, which is of bronze, is 9 ft. in height, excluding the granite pedestal. It is the work of Mr. Gilbert, R.A., and is a replica of the statue erected at Barry Docks, South Wales. The site, which is near the railway, was selected by the architect.

MURAL TABLET, WALLACE GREEN CHURCH, BERWICK, HADDINGTON.—A mural tablet, in memory of the late Principal Cairns, was dedicated recently in Wallace Green Church, Berwick. The architectural portion of the work has been designed by Mr. Washington Brown, A.R.S.A. In the panel in the centre is the head in marble of the Principal, which is the work of Mr. Stevenson, R.S.A.

MEETINGS.

THURSDAY, JULY 27.

British Institute of Public Health. — Congress at Edinburgh.

FRIDAY, JULY 28.

British Institute of Public Health. — Congress at Edinburgh (continued).

SATURDAY, JULY 30.

British Institute of Public Health. — Congress at Edinburgh (continued).

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

11,227.—NAIL-ENDED SCREW: *S. Brame and another.*—This is a combination screw-nail or nail-ended screw. The nail may be driven into any length of wood without the use of gimlet or bradawl, and then be turned in its full length by means of a screwdriver.

14,069.—SLIDING WINDOW-SASHES: *P. R. Morris and another.*—Here one sash balances the other. The sashes are hung by a chain over a small wheel or pulley screwed at the top. A lock is fitted to allow the sash to be locked at various points if the window be open.

14,698.—PLUG FOR DRAINS: *C. E. Price.*—The plug which is the subject of this patent is made of a number of separate rings arranged that each fits into the other. Two of these plates are then taken, and a rubber ring placed between them. When the plates are drawn together it expands the rubber ring, forming a plug or stopper to the drain.

14,735.—PEDESTAL WATER-CLOSETS: *E. W. Quirk and another.*—In seats, as ordinarily constructed, there is nothing to assist an invalid in rising or to prevent him falling sideways in case of a sudden attack of illness. By this invention a hand-rail or arm is fixed on each side.

17,117.—VENTILATOR: *G. H. Bartlett.*—The improvements claimed by this patent are in the direction of better fixing for ease in opening, setting, and closing the ventilator, which is effected by a small hook or catch actuated by a cord and held in position by a spiral spring. All the louvres or shutters are actuated by the one lever and controlled by the spiral spring.

4,610.—ORNAMENTAL BRICKS AND TILES: *M. Korth* (Stotzheim).—Special appliances adapted to be fixed to machinery already in existence and designed to produce ornamental facing bricks or tiles are described in this specification. The clay is passed over cylinders on which a design is engraved. In the case of corner facing bricks three of those cylinders are employed. Many small mechanical details are introduced into the machine to manufacture the bricks and tiles in a continuous manner.

7,620.—BRICKMAKING MACHINERY: *W. Johnson.*—The point in this invention is combining in one machine the various processes in the manufacture of bricks. That is the mixing, pugging, or kneading the material, the forming or moulding the bricks, and the ultimate process of pressing and finishing them to the required shape and size ready for conveyance to the kiln. These several operations are by means of special devices performed by a single machine.

CONTRACTS AND PUBLIC APPOINTMENTS.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Alterations, &c. Chapel, Eyrecourt, Ireland	Capt. S. J. Cowan	.....	July 25
Electric Lighting Station	Nottingham Corp.	A. Brown	do.
Paving and Flagging, Dukinfield	Alma Bridge Co.	Spinks & Beever	do.
*Making-up Roads	Kensington Vestry	W. Weaver	do.
Channelling, Gullies, &c. Sheffield-road	Hoyland Nether Local Board	W. Farington	do.
Sewering, Paving, &c. (twelve streets)	Nelson (Lancs.) Corp.	J. W. Bradley	do.
Iron Pipes (2,000 yards)	Bury (Lancs.) Corp.	*Official*	do.
Six Cottages, Latchford, Irlam, and Barton	Manchester Ship Canal Co.	do.	do.
Chimney Stack, House, &c. Irishtown	Rathmines & Pembroke Main Drainage Board	do.	July 26
*Granite	West Ham Union	do.	do.
Cast-iron Pipes	Cardiff Corporation	W. H. Massey	do.
Retaining Walls, &c. River Taff	do.	W. Harpur	do.
Forming, Metalling, &c. (two roads)	do.	do.	do.
Additions to Premises, West Hedgeley, near Alnwick	J. R. Carr-Ellison	M. Temple Wilson	do.
Street Works, Cambridge-street, &c.	Stockport Corporation	J. Atkinson	do.
Alterations, &c.	Stoke - upon - Trent Union	C. Lynam	do.
Sewering, Kerbing, &c. Howard-road	Handsworth Local Bd.	E. Kenworthy	do.
New Road, Portmadoc to Borthygest	Ynyscynhaiarn L. C.	T. Roberts & Son	do.
*Engine and Boiler House, &c.	Ealing U.S.A.	Bramwell & Harris	do.
Two Shops and Houses, Fisher-street, Workington	.....	W. G. Scott	July 27
Water and Sewerage Works	Pontypridd U.R.S.A.	G. S. Morgan	do.
School Buildings, Moulton, Lincs.	Moulton Seas End National School	W. B. Smith	do.
*Erection of Premises	Hove Baths and Laundry Co.	P. B. Chambers	do.
Drainage Work, Shafts, &c. Salisbury-road	Barnet Local Board	*Official*	do.
Additions to Police Station, Dorchester	Standing Joint Com.	do.	July 28
*School and Residence, Polegate	Hailsham School Bd.	O. Mitchell	do.
*Sixty-five Houses, Roadmaking, &c. Aber Valley	Universal Steam Coal Co.	T. C. Wakeling	do.
Cast-iron Pipes (1,660 yards)	Burley - in - Wharfdale Local Board	J. Stradling	do.
Additions, &c. St. James's Schools, Longton, Staffs.	.....	Scrivener & Sons	do.
Two Houses, Rodley, near Leeds	.....	Kay & Twist	do.
Ten Houses, Brougham-road, Marsden, Huddersfield	.....	Arthur Shaw	do.
Additions to Mortuary	Birmingham Union	W. H. Ward	do.
Sewerage Works, Stoke Gabriel	Totnes U.R.S.A.	W. F. Tollit	do.
Tar Paving	Andover Corp.	A. Purkess	do.
Forming and Metalling Roadway	Cockermouth High. B.	J. B. Wilson	July 29
House, Neville's Cross, Durham	S. T. Ainsley	H. T. Gradon	do.
Road Metal (1,000 cub. yds.)	Bexhill Local Board	M. D. Graves	do.
School Buildings, &c. Lelant, Penzance	.....	O. Caldwell	do.
Sewerage Works	Romsey (Hants), Corp.	*Official*	do.
Additions to School Buildings	Sandridge Sch. Bd.	T. F. Woodman	July 31
School Buildings, Perth	Rhondda Intermediate Sch. Com.	J. Rees	do.
Goods Shed, Spencer Dock	Belfast Harbour Com.	G. T. L. Giles	do.
Paving Two Streets	Dukinfield Loc. Bd.	H. Veevers	do.
*Painting Works, &c. at Infirmary	Croydon Union	F. West	do

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Thirteen Houses, Malkroyd-lane	Dewsbury Pioneers' Indus. Soc.	Holtom & Fox	July 31
Gasholder, &c. near Newcastle	West Stanley Colliery	.....	do.
Granite Road Metal	East Dereham Loc. Bd.	W. W. Lake	Aug. 1
*Painting Works, &c.	Fulham Union	*Official*	do.
*Broken Granite	Harrow Local Board	do.	Aug. 1
Boiler House, &c. at Workhouse	Toxteth Park (L'pool), Union	Ellison & Son	do.
Waterworks	Atherstone R.S.A.	W. R. H. Chipperfield	Aug. 2
Kentish Chalk Flints and Granite	Hampton - on - Thames Local Board	J. Kemp	Aug. 4
Bandstand	Old Swindon Loc. Bd.	W. H. Read	Aug. 5
Church, Chaxhill, nr. Westbury-on-Severn	.....	F. E. Godwin	do.
*Broken Granite and Gravel	Romford Local Board	*Official*	do.
*Bridge, near Truro	G. W. Ry. Co.	do.	Aug. 5
*Alterations, &c. Goods Shed, Newton Abbot	do.	do.	do.
Nurses' Home, Becket-street	Leeds Union	T. Winn	do.
Water Supply Works, Tetbury	.....	Thos. Holloway	do.
*Works of New Water Supply, Tetbury	.....	.....	do.
*Engine House, &c. &c.	Tottenham Local Board	J. E. Worth	do.
Drainage Improvements	Grimsby U.S.A.	Marshall Petree	Aug. 7
Road Works, Corporation Estate	do.	do.	do.
Extension of Library	Cardiff Corporation	Seward & Thomas	do.
*Furniture for Technical Institute	Gillingham Local Bd.	G. E. Bond	Aug. 8
*Main Drainage Works	Maidenhead, Boro of.	C. N. Lailey	Aug. 11
*Completing Four Houses, Muswell	.....	H. Vulliamy	No date
*Two Villas, Harrow and Croydon	.....	J. Rookwood	do.
*Painting Works, Netley Hospital	War Department	*Official*	do.
Business Premises	Aberdeen Journal"	Ellis & Wilson	do.
School Buildings, Ashley-street	Carlisle School Board	T. T. Scott	do.
Almshouses, Kirkthorpe, near Wakefield	.....	W. Watson	do.
Three Houses, Port-road, Carlisle	Enterprise Bldg. Soc.	J. Graham	do.
*Alterations &c. to Washhouse	Islington Baths and Washhouses Commrs.	A. H. Tiltman	do.
*Pulling-down and Re-building Houses	H. Cushen & Co.	J. W. Dunford	do.
*Soldiers' Quarters, Guernsey	War Department	*Official*	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Assistant Engineer and Surveyor	Newport (Mon.) Corp.	150*l.* to 250*l.*	July 24
*Outdoor Superintendent	do.	150*l.* to 200*l.*	do.
*Clerk of Works	Bursalem Corporation	3*l.* 3*s.*	do.
*Borough Surveyor	Beverley Town Council	150*l.*	July 24
*Foreman of Works (Gold Coast)	Crown Agents for Colonies	250*l.* to 300*l.*	July 31
*Surveyor and Inspector of Nuisances	Carshalton Loc. Bd.	220*l.*	Aug. 1
Clerk of Works, Pontypridd	Llanwonno Sch. Bd.	2*l.* per week	Aug. 1
*Clerk of Works	Corp. St. Helen's	2*l.* 2*s.*	No date

Those marked with an Asterisk (*) are advertised in this number. Contracts pp. lv., vi., viii., *and* xxiii. *Public Appointments, pp.* xx. *and* xxi.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 3.—12,968, H. Lazenby, Window Sashes.—12,976, H. Lepersonne, Manufacture of Glass.—12,984, J. Jones and A. Leach, Stop Chamfering Machines.—12,994, J. E. Hughes, A New Facing to be Applied to Hearths, Tiles, Mantels, &c.

JULY 4.—13,006, P. Lomax, Air-pipe Ventilator.—13,026, J. B. Howard, Building Blocks or Bricks.—13,042, H. J. Jones, Gauge for Woodworkers.—13,077, S. Wilson, Stoves or Grates.—13,079, A. Typlt, Process for Making Paving-stones, Patterned Slabs, &c.—13,080, A. Typlt, Mixture and Process for Producing Artificial Marble and other Stone Imitations.

JULY 5.—13,103, A. Sanderson, Lowering, Raising, and Fastening Window-sashes, &c.—13,116, J. C. Sellars, Instruments for use in connexion with the Cementing, Plastering, or Surfacing of Walls, &c.—13,438, G. Laurence, Planning Dwelling-houses.—13,143, A. Moore and H. Crisp, Fixing Sheets of Glass, Slates, or the like, upon the Framework of Roofs.

JULY 6.—13,173, B. and W. J. Cannon, Wood Stains.—13,189, G. Martin, T. Littlehales, and J. Lockett, Glazing Roofs and Skylights.—13,221, E. W. Lyne and W. Gould, Socket Support for Lead and other Soft Metal Pipes.

JULY 7.—13,232, H. and H. J. Warrington, Bricks for Building Use, &c.—13,247, M. Syer, Disinfecting Apparatus for Attaching to the Flushing-pipes of Water-closets, &c.—13,257, T. Smith, Hinges.—13,272, J. T. Hancox, Sash Fastener.

JULY 8.—13,300, T. D. Owen, Compositions for Use as Cement or Artificial Stones.—13,311, T. Reunert, Rock Drills.

PROVISIONAL SPECIFICATIONS ACCEPTED.

9,201, S. Chilty, Ventilators.—9,879, H. Markley, Testing Drains.—10,619, W. Ward and J. Wallace, New or Improved Paint.—11,276, W. Wilson and W. Priest, Manufacture of Paints.—12,224, J. Winstanley, Taps.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

13,825, W. Hartley and W. Blenkinsop, Covering for Roofs and other such like purposes, or a Substitute for Glass.—14,462, H. Sutcliffe, Top Seats for Closets.—15,139, T. Stansfield, Earthenware Basins of Water-closets, &c.—15,264, R. Stevens, Spokeshaves for Working Wood.—15,824, W. Middlemiss, Construction of Cabinets.—15,882, J. Honeyman, Heating Greenhouses and other Buildings.—15,934, J. Bilton, Decorating Pottery, Porcelaine, Tiles, Bricks, &c.—16,064, G. Jennings and J. Morley, Supplying Water to Closets and other places.—16,067, J. Rourke, Caissons.—17,442, J. Peel, Stoves and Grates.—18,042, J. Publes, Self-locking Window-sash Fastener.—20,059, H. Ford, Sliding and Swinging Window Sashes and Frames.—20,500, E. Burdewald and A. Teinturier, Sewer Gullies for Roadways.—9,651, J. Lenert, Chimney and Ventilating Shaft Tops.—9,798, A. Simonis, Water-closet Seats.—10,767, P. Massau, Self-standing Scaffolds.—10,829, A. Williams, Sash Cords.—10,977, W. Errington, Bridge.—11,070, A. Boult, Closets.—11,090, J. Poate, Preventing Draughts Under Doors.—11,572, W. Chappell, Joiners' Sash Cramp.—11,727, W. Mangle, Paint, or Paint-like Composition.—11,826, P. Willis, Window Frames.—12,009, B. Esmarch, Joiners' Cramp.—12,023, J. Hind, Mixing Paint.—12,028, P. Jones, Clamp.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

JULY 7.—By *Chinnock, Galsworthy, & Co.* (at Selby): "The Manor of Carlton," with its rights, &c., near Selby, 1,040*l.*; "Manor Farm" and 213 a. 2 r. 12 p., f., r. 270*l.* 10*s.*, 6,000*l.*; freehold farm and 229 a. 3 r. 32 p., r. 270*l.* 14*s.*, 6,000*l.*; "The Bridge Inn" and 53 a. 3 r. 23 p., f., r. 108*l.* 5*s.*, 2,650*l.*: "Carlton Bridge," f., r. 240*l.*, 3,200*l.*; "The Cottage," "The Grange," "Ivy House," "Carlton Villa," and two houses, Carlton, f., 2,615*l.*; "The Foresters' Arms Inn," f., r. 18*l.*, 650*l.*; numerous enclosures of f. land, 62 a. 1 r. 27 p., 2,770*l.*; numerous houses and cottages, &c., f., 5,180*l.*; tithe rent charges of 445*l.* 17*s.* 10*d.* per annum, Drax, near Selby, 5,176*l.*

JULY 10.—By *Messrs. Spelman* (at Norwich): "The St. Edmund's Factory," cottages, &c., Norwich, f., area 49,500 ft., 5,000*l.*; two malthouses, and two cottages, f., 380*l.*; f. house, warehouse, &c., Duke's-pl., 1,100*l.*—By *Driver & Co.* (at Beccles): F. marsh land, Norton Marsh, Norfolk, 46 a. 3 r. 39 p., 1,150*l.*; f. marsh land, Haddiscoe Marsh, 13 a. 3 r. 20 p., 665*l.*; f. arable land, Sotterley, Suffolk, 4 a. 2 r. 15 p., 54*l.*; an enclosure of garden ground, 23*l.*; "The City Farm," near Beccles, 93 a. 0 r. 29 p., f., r. 72*l.*, 650*l.*; "The Manor Farm," 41 a. 2 r. 26 p., f. 510*l.*—By *Prickett & Ellis:* No. 28, Fitzroy-sq., u.t. 31 yrs., g.r. 18*l.* 10*s.*, r. 95*l.*, 560*l.*; 41, High-st., Clapham, u.t. 28 yrs., g.r. 12*l.*, 650*l.*; 5, Kent Ter., Regent's Pk., u.t. 32 yrs., g.r. 31*l.* 10*s.*, 350*l.*; No. 24, Portland-pl., 3, Duchess-st., and 3, Cavendish Mews South, u.t. 13 yrs., g.r. 160*l.*, 450*l.*—By *Oetzmann & Co.*: 138, Adelaide-rd., Primrose Hill, u.t. 59 yrs., g.r. 12*l.*, 650*l.*—By *Ball, Norris, & Hadley*: 43, 45, 47, Verney-rd., Old Kent-rd., u.t. 83 yrs., g.r. 15*l.*, 265*l.*

JULY 11.—By *G. F. Francis:* 26, Chester-ter., Eaton-sq., u.t. 30 yrs., g.r. 15*l.*, r. 120*l.*, 850*l.*—By *Saml. B. Clark & Son:* 7, Ogle Mews, Fitzroy-sq., u.t. 32 yrs., g.r. 8*l.*, 500*l.*—By *E. F. Taylor:* "Oak Cottage," Bulwer-rd., Barnet, f., r. 26*l.*, 415*l.*—By *Debenham, Tewson, & Co.:* Profit rental of 100*l.* a year, secured on 1, 2, Addle-st., City of London, u.t. 39 yrs., 1,000*l.*; 20 to 26 even, and 1 to 5 and 5A, Webber Row, Westminster Bridge-rd., u.t. 23 yrs., g.r. 160*l.*, r. 534*l.*, 2,500*l.*—By *A. Booth:* "The Athenæum," Camden-rd., u.t. 57 yrs., g.r. 25*l.*, 1,700*l.*; 2A, Monnow-rd., Bermondsey, u.t. 49 yrs., g.r. 20*l.*, r. 85*l.*, 700*l.*; 2, Monnow-rd., u.t. 57 yrs., g.r. 5*l.* 12*s.* 6*d.*, 190*l.*—By *Rogers, Chapman, & Thomas:* 7, 8, Graham-st. West, Eaton-sq., u.t. 28 yrs., g.r. 10*l.*, r. 62*l.*, 620*l.*—By *Egerton, Breach, & Galsworthy:* "Ledwell House," Ledwell, Oxon, and 14 a. 3 r. 20 p., f., 1,000*l.*; 17 to 23 odd, Margravine Gardens, West Kensington, u.t. 89 yrs., g.r. 26*l.*, 1,030*l.*; 2, St. Dunstan's-rd., u.t. 89 yrs., g.r. 7*l.*, r. 38*l.*, 300*l.*; 2, 24 to 30 even, Margravine Gardens, u.t. 89 yrs., g.r. 35*l.*, r. 190*l.*, 1,410*l.*; 34, 36, Margravine Gardens, u.t. 89 yrs., g.r. 14*l.*, r. 76*l.*, 590*l.*; 23, 25, St. Dunstan's-rd., u.t. 89 yrs., g.r. 12*l.*, r. 72*l.*, 500*l.*—By *Wilkinson, Son, & Welch* (at Brighton): 2, 3, St. Margaret's-pl., Brighton, f., r. 72*l.*, 1,310*l.*; "Rose Cottage," Lancing, f., r. 13*l.*, 170*l.*

JULY 12.—By *C. & H. White:* 25, The Grove, Vauxhall, u.t. 57 yrs., g.r. 7*l.* 7*s.*, r. 42*l.*, 425*l.*; 40, Sandmere-rd., Clapham, u.t. 87 yrs., g.r. 8*l.* 12*s.*, 375*l.*; 37, 39, 41, Faraday-st., Walworth, u.t. 59 yrs., g.r. 18*l.* 15*s.*, 650*l.*; 35 to 43 (even), Albert-st., Kennington, u.t. 48 yrs., g.r. 15*l.*, r. 151*l.*, 1,370*l.*—By *Baxter, Payne, & Lepper:* "Plaistow Lodge," Bromley, and 124 a. 0 r. 16 p., f., 35,000*l.*—By *Dunn & Soman:* L.g.r. of 11*l.* 16*s.*, St. John's Pk., Holloway, u.t. 58 yrs., 210*l.*; 58, Victor-rd., u.t. 66 yrs., g.r. 4*l.*, 115*l.*; 16, Malvern-ter., Tottenham, u.t. 68 yrs., g.r. 4*l.* 15*s.*, 120*l.*

JULY 13.—By *Messrs. Cronk:* 1, 2, Park Villas, Sevenoaks, f., r. 95*l.*, 1,360*l.*—By *Trollope & Sons:* "The Cottage," Englefield Green, with grounds, f., r. 1,200*l.*; f. manufacturing premises, Southall, Middlesex, r. 100*l.*, 1,490*l.*; a plot of f. land adjoining, o a. 1 r. 23 p., 150*l.*; 5, James-st., Oxford-st., u.t. 10 yrs., g.r. 25*l.*, r. 80*l.*, 300*l.*; 7, James-st., u.t. 9 yrs., g.r. 55*l.*, r. 90*l.*, 180*l.*; 12, James-st., u.t. 10 yrs., g.r. 25*l.*, r. 80*l.*, 300*l.*—By *Stimson & Sons:* 25, Kent House-rd., Sydenham, f., 265*l.*—By *G. B. Smallpiece:* 63 to 97 (odd), Alscot-rd., Bermondsey, u.t. 24 yrs., g.r. 55*l.*, and an i.g.r. of 25*l.*, same term, 2,530*l.*; 17, London-rd., Forest Hill, u.t. 38 yrs., g.r. 20*l.*, r. 60*l.*, 360*l.*—By *C. C. & T. Moore:* F.g.r. of 8*l.*, Commercial-rd., reversion in 9 yrs., 710*l.*; f.g.r. of 8*l.*, Christian-st., reversion in 12 yrs., 1,020*l.*; f.g.r. of 5*l.*, St. Paul's-rd., Mile End, reversion in 6 yrs., 350*l.*; 20, Burdett-rd., u.t. 55 yrs., g.r. 6*l.*, r. 34*l.*, 330*l.*; 225, Lower-rd., Deptford, u.t. 58 yrs., g.r. 7*l.*, r. 60*l.*, 625*l.*; two plots of f. land, Leytonstone, 240*l.*; seven plots of f. land, East Ham, 165*l.*; No. 28, Minories, u.t. 96 yrs., g.r. 120*l.*, r. 170*l.*, 550*l.*; 21, Powerscroft-rd., Clapton, u.t. 85 yrs., g.r. 7*l.*, r. 32*l.*, 270*l.*—By *Newbon & Co.:* 8, Vivian-rd., Old Ford, f., 440*l.*; 81, Seymour-pl., Bryanston-sq., u.t. 7 yrs., g.r. 6*l.*, r. 42*l.*, 85*l.*; 25, 26, Brown-st., u.t. 7 yrs., g.r. 8*l.*, 125*l.*; 45, Cornwallis-rd., Holloway, u.t. 62 yrs., g.r. 5*l.* 10*s.*, r. 29*l.*, 240*l.*; 75, Victoria-rd., Kentish Town, u.t. 42 yrs., g.r. 5*l.*, r. 31*l.*, 305*l.*; 3 to 13 (odd), Arthur-rd., Edmonton, u.t. 67 yrs., g.r. 31*l.* 10*s.*, 575*l.*; 15 to 23 (odd), Arthur-rd., u.t. 67 yrs., g.r. 26*l.* 5*s.*, 500*l.*; 3, Tillotson-rd., u.t. 91 yrs., g.r. 5*l.* 5*s.*, 140*l.*; 33 to 47 (odd), Fairfax-rd., Hornsey, u.t. 95 yrs., g.r. 40*l.*, r. 208*l.*, 1,585*l.*; 45, 46, Nelson-st., Hackney, u.t. 63 yrs., g.r. 6*l.*, 565*l.*—By *Rogers, Chapman, & Thomas:* L.g.r. of 285*l.*, Bramham Gardens, Kensington, u.t. 80 yrs., g.r. 31*l.*, 6,360*l.*; i.g.r. of 160*l.*, Bramham Gardens, u.t. 79½ yrs., g.r. 20*l.*, 3,500*l.*; i.g.r. of 160*l.*, u.t. 80½ yrs., g.r. 16*l.*, 3,600*l.*; i.g.r. of 35*l.*, u.t. 81½ yrs., g.r. 5*l.*, 750*l.*; i.g.r. of 35*l.*, u.t. 82 yrs., g.r. 5*l.*, 750*l.*; the Mansions, i.g.r. of 40*l.*, u.t. 81 yrs., g.r. 20*l.*, 500*l.* (with reversion to rack rentals for ten to twelve years on the six last-mentioned lots).

JULY 14.—By *J. S. Richardson:* 19, Alexandra-rd., Hornsey, u.t. 84 yrs., g.r. 8*l.*, r. 38*l.*, 335*l.*—By *Reynolds & Eason:* 30, Bartrip-st., Kingsland, and 18, Cowdry-st., u.t. 81 yrs., g.r. 6*l.*, r. 63*l.* 12*s.*, 400*l.*; f. rent charge of 4*l.* 10*s.*, Lewes, 80*l.*; f.g.r. of 10*l.* 10*s.*, Gurney-rd., Stratford, reversion in 81 yrs., 270*l.*; 54, Savonia-st., Battersea, f., 130*l.*; 32, 32A, Allerton-st., City-rd., u.t. 15 yrs., no g.r., r. 50*l.*, 150*l.*; 57, 59, 61, Union-rd., Borough, u.t. 3 yrs., g.r. 15*l.* 15*s.*, r. 78*l.*, 40*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	9/0/0 0/0/0
Teak, E.I.	load	9/0/0 15/0/0
Sequoia, U.S.ft.cu.		2/3 2/6
Ash, Canada	load	2/15/0 4/0/0
Birch, do.		2/15/0 3/5/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/5/0 2/15/0
Oak, do.		3/0/0 5/5/0
Canada		5/10/0 7/0/0
Pine, Canada red		2/5/0 2/15/0
Do. Yellow		2/5/0 4/10/0
Lath, D'ntsic, fath.		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Deals, Finland 2nd & 1st std	100	6/10/0 9/0/0
Do. 4th & 3rd		6/0/0 6/10/0
Do. Riga		6/10/0 8/0/0
St. Petersburg, 1st yellow		9/0/0 13/0/0
Do. 2nd yellow		7/0/0 8/0/0
Do. white		8/0/0 10/0/0
Swedish		7/0/0 15/0/0
White Sea		7/0/0 15/10/0
Canada, Pine 1st		21/0/0 28/10/0
Do. do. 2nd		16/0/0 17/10/0
Do. do. 3rd &c.		7/10/0 10/5/0
Do. Spruce, 1st		8/10/0 11/0/0
Do. do. 3rd & 2nd		6/10/0 8/0/0
New Brunswick		6/0/0 7/10/0
Battens, all kinds		3/0/0 15/0/0
Flooring boards, sq., 1 in. prep. 1st		0/0/6 0/14/6
Do. 2nd		0/7/6 0/11/6
Other qualities—		0/4/6 0/7/6
Cedar, Cuba	ft.	/4 /4½
Honduras, &c.		/4 /4½
Mahogany, Cuba		/4 /6½
St. Domingo, cargo av.		/3 1/6
Mexican do. do.		/3½ /4½
Tobasco do. do.		/3½ /6½
Honduras do.		/4½ /6
Box, Turkey ton		4/0/0 13/0/0
Rose, Rio		9/0/0 20/0/0
Bahia		8/0/0 18/0/0
Satin, St. Domingo	ft.	0/0/6 0/1/3
Porto Rico		0/0/7 0/1/6

TIMBER (*continued*).

Walnut, Italian	..	0/0/3½ 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/1/9 /0/0
Bar, Welsh, in London		5/17/6 6/0/0
Do. do. at works in Wales		5/7/6 5/10/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British, cake and ingot		46/0/0 46/10/0
Best selected	..	47/0/0 47/10/0
Sheets, strong	..	54/0/0 0/0/0
Chili, bars		42/10/0 42/17/6
YELLOWMETAL	lb	0/0/4½ 0/0/5
LEAD—Pig, Spanish	ton	9/15/0 9/17/6
English com. brands		9/17/6 10/0/0
Sheet, English, 6 lbs. per sq. ft. and upwards		11/0/0 0/0/0
Pipe		11/10/0 0/0/0
ZINC—English sheet	ton	22/0/0 0/0/0
Vieille Montagne		22/10/0 0/0/0
TIN—Straits		82/2/6 82/12/6
Australian		83/17/6 84/7/6
English Ingots		87/0/0 87/10/0
Banca		90/0/0 90/5/0
Billiton		88/10/0 88/15/0

OILS.

Linseed	ton	21/0/0 21/2/6
Cocoanut, Cochin		29/0/0 0/0/0
Do. Ceylon		27/5/0 0/0/0
Palm, Lagos		26/10/0 0/0/0
Rapeseed, English pale		24/15/0 25/0/0
Do. brown		23/5/0 0/0/0
Cottonseed ref.		22/0/0 0/0/0
Oleine		22/0/0 23/10/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/10/0 12/0/0
TAR—Stockholm	barrel	0/18/6 0/0/0
Archangel		0/12/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—Accepted for the erection of a dwelling-house, farm steading, and for supplying water, Farm of Longside, Bourtie, Old Meldrum, for Mr. W. B. Coltman, of Blair. Mr. James Duncan, architect, Turriff, Aberdeen :—

Mason Work.—William Lander, Inverurie	£542 0 0
Carpenter.—Wm. Wright, Kemnay	340 0 0
Slater.—David Sherriffs, Oldrueldrum	155 12 6
Plasterer.—John Gibson, Turriff	31 10 0
Plumber.—Charles Duthie, Turriff	35 0 0
Total	1,104 2 6

BRENTFORD.—For the supply and delivery of 1,500 yards of broken Guernsey granite, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor :—

	s.	d.
W. Griffiths	15	6 per yard.
A. & F. Manuelle	15	2 „ „
Nowell & Robson	15	2 „ „
Rhodes	15	0 „ „
Le Maitre	14	9 „ „
Mowlem & Co., Westminster*	14	7 „ „

* Accepted.

BRENTFORD.—For the supply and delivery of 800 yds. of Kentish flints, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor :—

	s.	d.
A. J. Knight	5	10 per yard.
G. Pearce, Brentford*	5	4 „ „
Horsford & Co.	5	3 „ „

* Accepted.

BRISTOL.—For the erection of a Wesleyan Chapel and Schools at Fishponds. Mr. Wm. Paul, architect, 59, Wells-road, Bristol. Quantities by the architect :—

H. A. Forse	£3,796	H. J. Rossiter	£3,100
R. Wilkins & Son	3,445	C. A. Hayes	3,067
C. H. Jones	3,438	G. Downs	2,950
Smith & Turner	3,397	J. Browning	2,942
J. E. Davis	3,240	E. Clark	2,907
Free & Sons	3,222	A. J. Beaven (accepted)	2,890

BURNHAM (Somerset).—Accepted for the erection of a pair of villa residences, walls, &c., Allandale Estate, for Mrs. Green and Mr. J. W. Tucker. Mr. Charles S. Leech, architect, Boulevard, Weston-super-Mare :—

J. Keats, Burnham, Somerset	£600 0 0

CARDIFF.—For erecting new malt store, Canton Brewery, Cardiff, for Messrs. W. Hancock & Co., Limited. Mr. C. Jones, architect, St. John's-square, Cardiff :—

Pickford	£1,765	Stephens, Bastow & Co., Limited	£1,568
Gibson	1,760	J. Thomas (accepted)	1,520
Hopkins	1,660	Knox & Wells (informal)	1,500
Shepton & Sons	1,596		

CHESTER.—For the erection of a grand stand, shedding, &c., Sandbach, for the Cheshire Agricultural Society. Mr. T. A. Beckett, architect, St. Werburghs Chambers, Chester :—

S. H. Woodhouse, West Bridgford, Nottingham (accepted at per priced schedule).

CHRISTCHURCH (Hants).—For proposed additions and alterations to Highcliffe Church, Christchurch, Hants. Messrs. Lawson & Donkin, architects & surveyors, Bournemouth :—

	Portland Stone Dressings.	Deduct if Bath Stone.
McWilliam & Son	£906 10 0	£11 0 0
T. H. Kingerlee	890 0 0	—
Wm. Hoare	798 0 0	40 0 0
Jenkins & Sons	789 0 0	43 0 0
W. H. C. Curtis	770 0 0	40 0 0
Frampton	750 0 0	40 0 0
George Harding	730 0 0	19 0 0

CROYDON.—For erecting two detached houses in Mason's Avenue, Croydon. Mr. H. Gough, architect, Croydon :—

M. Taylor	£1,395	Handscombe & Smith	£1,145
E. J. Saunders	1,295	D. W. Barker*	978
W. Smith	1,250	* Accepted.	

[Subsequent extras, £100 0 0]

ELLAND (Yorks).—Accepted for rebuilding the Bridgefield Mills, Messrs. C. F. L. Horsfall & Son, architects, Lord-street Chambers, Halifax. Quantities by the architects :—

Masons.—Hemingway & Marshall, Bank Top, Southouram	£1,154 17 0
Joiner.—James Wormald, Providence-street, Elland	927 10 0
Plasterers and Slaters.—J. Bancroft & Son, Winding-road, Halifax	170 0 0
Plumber.—J. Aspinall, Huddersfield-road, Elland	62 0 0
Concretor.—S. McFarlane, Cookridge-street, Leeds	152 0 0
Painters.—C. W. Longbottom & Son, Lord-street, Halifax	29 0 0
Wrought-iron.—A. Pulman & Son, Weymouth-street, Halifax	69 0 0

GREAT YARMOUTH.—For the erection of two houses, Wellesley-road. Mr. Chas. G. Baker, architect, Town Hall-chambers, Yarmouth :—

Barnard	£1,356	Bray	£1,188
Eastor	1,310	Beckett	1,133
Beech	1,267	Grimble (accepted)	1,117
Bond	1,249		

[All of Great Yarmouth.]

HASTINGS.—Accepted for the supply and delivery of 1,050 yards cast-iron pipes (6 in.), for the Corporation. Mr. P. H. Palmer, Waterwork's Engineer, Town Hall, Hastings :—

Williams & Co., Bankside, S.E. (per ton)	£4 7 6

HOREHAM ROAD (Sussex).—Accepted for alterations and additions to "Horeham-hurst," for Mr. Richard Stapley. Mr. H. Percy Monckton, architect, 32, Walbrook, E.C. ;—

D. Ashdown, Horeham-road	£318 0 0

JARROW.—For excavating, draining, kerbing, &c., Beech- and other streets, for the Corporation of Jarrow. Mr. J. Petree, Borough Engineer, Grange-road, Jarrow. Quantities supplied :—

Thos. Callaghan	£454 11 1

[Engineer's estimate, £438 6s.]

KEARSNEY (Kent).—Accepted for alterations and additions to house, Kearsney, Kent, for the Rev. J. W. Ewing. Mr. H. Percy Monckton, architect, 32, Walbrook, E.C. :—

T. J. Chamberlain, Dover	£130

LEEDS.—Accepted for the erection of two semi-detached villa residences, Cardigan-road. Mr. T. Butler Wilson, architect, 12, East Parade, Leeds :—

Bricklayer.—John Pickard, Dorrington-street	£504 16 6
Joiner.—George Musgrave, Woodhouse	284 3 0
Slater.—Sharpe & Harper, Holbeck	29 15 5
Plasterer.—Wm. Pennington, Woodhouse	117 7 10

LEEK.—Accepted for the erection of two dwelling-shops, for Mr. Saunders. Mr. Larner Sugden, architect. Quantities by the architect :—

Contracts 1 and 2.—Thomas Grace	£1,704 0 0
Contract 3.—Isaac Heath	182 10 6

LONDON.—For exterior painting, &c., at the following schools, for the School Board for London. Mr. T. J. Bailey, Architect :—

Strap-road School.

Martin	£217 15 6	Knight	£186 0 0
Britton	196 18 6	Taylor	185 0 0
McCornick	195 0 0	Marchant & Hirst	139 10 0

Pushmore-road School.

Marchant & Hirst	£288 0 0	Vigor	£228 0 0
Britton	279 0 0	Davenport	135 0 0

Fleet-road School.

Cruwys	£268 10 0	Cowley & Drake	£210 0 0
Thorpe	248 0 0	Eady	187 4 6
Marchant & Hirst	235 0 0		

North End-road School.

Kirby & Chase	£280 0 0	Mowlem & Co.	£169 0 0
Hunt	174 0 0	Marchant & Hirst	149 0 0
Polden	170 0 0	Hammond	119 0 0

LONDON.—For providing and fixing heating apparatus on the low pressure hot water system (with the necessary boiler) for the undermentioned new school, and enlargements of schools, now in course of erection, for the School Board for London. Mr. T. J. Bailey, Architect :—

New School, Hugon-road, Chelsea.

R. H. & J. Pearson	£375 10	Maguire & Son	£255 0
The Wilson Engineering Company, Limited	342 0	R. Crane	253 15
W. G. Cannon	264 10	Clarke & Sons	248 0
J. Wontner-Smith, Gray & Co.	262 10	C. F. Kinnell & Co., Southwark-street*	230 0

Enlargement, Ackmar-road, Chelsea.

Fraser & Fraser	£298 0	Clarke & Sons	£254 0
J. & F. May	294 0	Purcell & Nobbs	237 0
Z. D. Berry & Sons	285 0	W. G. Cannon, London-road, Southwark*	214 0
G. Davis	270 0		

Enlargement, Battersea Park-road, West Lambeth.

R. Dawson & Co., Ltd.	£586 0	Maguire & Son	£426 0
J. & F. May	484 0	J. C. & J. S. Ellis, Sheffield*	420 0
Clarke & Sons	484 0		
W. G. Cannon	448 10		

Enlargement, Haselrigge-road, West Lambeth.

J. Wontner-Smith, Gray & Co.	£560 0	Purcell & Nobbs	£394 0
C. P. Kinnell & Co.	495 0	Wenham & Waters	389 0
G. Davis	450 0	Comyn, Ching & Co., Cas le-street, Long Acre*	359 18
Russell & Co.	439 0		
Perkins & Sons, Ltd.	426 0		

* Recommended by the Works Committee for acceptance.

LONDON.—For dividing the large room in the infants' department of the Turin-street School, Bethnal Green, by means of a partition, and for removing the gallery, &c., for the School Board for London :—

Staines & Son	£140 0 0	Johnson & Co.	£117 15 6
T. White & Son	138 0 0	McCormick & Son, Canonbury-road*	117 0 0
J. T. Robey	131 0 0		

* Recommended by the Works Committee for acceptance.

LONDON.—For providing a partition in the boys' department of the Byron and Bright-street School, Bromley, for the School Board for London :—

J. N. Calnan & Co.	£180	F. J. Coxhead	£120
W. Gregar & Sons	150	C. Cox, Hackney*	108
J. T. Robey	138		

* Recommended by the Works Committee for acceptance.

LONDON.—For enlarging the Midway Place School, Rotherhithe, by 595 places, for erecting a new house for the schoolkeeper, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect :—

	For brick-work in cement, add.
Holloway Bros.	£14,230 0 0 .... £260 0 0
Holliday & Greenwood	14,078 0 0 .... 214 0 0
J. Grover & Son	14,059 0 0 .... 214 0 0
E. Lawrance & Sons	13,441 0 0 .... 214 0 0
W. Downs	13,146 0 0 .... 212 0 0
J. & M. Patrick	13,132 0 0 .... 237 0 0
Hart Bros.	12,820 0 0 .... 207 0 0
Treasure & Son	12,711 0 0 .... 216 0 0
C. Cox, Hackney	12,537 0 0* 214 0 0*

* Recommended by the Works Committee for acceptance.

LONDON.—For enlarging the babies' room of the Poole's-park School, Upper Holloway, and for providing a kindergarten gallery, &c., for the School Board for London. Mr. T. J. Bailey, Architect :—

E. Lawrance & Sons	£535	McCormick & Sons	£388
E. Houghton & Son	416	Kirby & Chase, Hornsey-road*	£329
J. Grover & Sons	399		

* Recommended by the Works Committee for acceptance.

LONDON.—For enlarging the Hindle-street School, Shacklewell, by 389 places, and for carrying out other works, for the School Board for London. Mr. T. J. Bailey, Architect :—

	For brick-work in cement, add.
E. Lawrance & Sons	£8,113 0 0 .... £123 0 0
J. Grover & Son	7,861 0 0 .... 123 0 0
C. Cox	7,327 0 0 .... 122 0 0
Stimpson & Co., Brompton-road	7,052 0 0* 163 0 0*

* Recommended by the Works Committee for acceptance.

LONDON.—For erecting new water-closets for all departments of the Hargrave Park-road School, Upper Holloway, and for recontructing the drainage of the school, for the School Board for London. Mr. T. J. Bailey, Architect :—

Kirby & Chase	£1,695	E. Lawrance & Sons	£1,396
G. Cox	1,495	E. Houghton & Son, Stroud-green*	1,277
F. Britton	1,468		
H. Knight & Son	1,397		

* Recommended by the Works Committee for acceptance.

LONDON.—For the erection of a junior mixed school, to provide accommodation for 414 children, on the "Victoria" site, Starch Green, and for other work, for the School Board for London. Mr. T. J. Bailey, Architect :—

		For brick-work in cement, add
Foster & Dicksee	£6,873 0 0	£59 0 0
J. Allen & Sons	6,445 0 0	73 0 0
D. Charteris	6,083 0 0	103 0 0
J. Willmott & Sons	5,897 0 0	88 10 0
Stimpson & Co.	5,836 0 0	115 0 0
Treasure & Son, Harringay	5,588 0 0*	85 0 0*

* Recommended by the Works Committee for acceptance.

LONDON.—For enlarging the East-lane School, Bermondsey-wall, by 402 places ; and for erecting a laundry centre, &c., for the School Board for London. Mr. T. J. Bailey, Architect :—

		For brick-work in cement, add.
Hart Bros.	£8,728 0 0	£164 0 0
J. Marsland	7,910 0 0	140 0 0
T. Boyce	7,897 0 0	150 0 0
F. & H. F. Higgs	7,845 0 0	175 0 0
Shillitoe & Sons	7,805 0 0	135 0 0
W. Downs	7,750 0 0	150 0 0
Holliday & Greenwood	7,692 0 0	150 0 0
J. Smith & Sons	7,650 0 0	115 0 0
J. Tyerman, Walworth-road	7,516 0 0*	150 0 0*

* Recommended by the Works Committee for acceptance.

LONDON.—For removing partitions in the Boys' and Girls departments of the Belleville-road School, New Wandsworth, and for providing four new glazed partitions, &c., for the School Board for London. Mr. T. J. Bailey, Architect :—

J. Garrett & Son	£467	W. Downs	£335
Lathey Bros.	416	Holloway Bros., Battersea*	300
W. Hammond	398		

* Recommended by the Works Committee for acceptance.

LONDON.—For building fire-escape galleries, &c., at the Cleveland-street Sick Asylum, for the managers. Mr. William S. Cross, architect, 18, Outer Temple, Strand :—

Mowlem & Co.	£648	Patman & Fotheringham	£551
McLachlan & Son	597	Perry & Co. (accepted)	540
Dorrell & Co.	560		

LONDON.—For forming a room for manual training purposes in connexion with the Warnington-road School, Portobello-road, Chelsea, for the School Board for London. Mr. T. J. Bailey, Architect :—

J. Grover & Son	£360 0 0	S. Polden	£282 0 0
S. Sealey	355 0 0	F. T. Chinchen, Kensal-green*	259 15 6
H. C. Clifton	317 0 0		
Cowley & Drake	285 0 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For rebuilding the water-closets of the girls' department of the Beethoven-street School, Queen's Park, for the School Board for London. Mr. T. J. Bailey, Architect ;—

H. C. Clifton	£330	Peattie & Axtell	£235
Humpherson & Co.	328	S. Polden, Woodstock-road*	231
G. Lyford	296		

* Recommended by the Works Committee for acceptance.

LONDON.—For rebuilding No. 1A, Tottenham Court-road. Messrs. Wigg, Oliver, & Hudson, architects :—

T. Little	£5,719	J. Bentley	£4,994
W. Brass & Son	5,258	Garlick & Hallam	4,985
Kirk & Randall	5,176	J. Sparks	4,958
Perry & Co.	5,175	Harris & Wardrop	4,849
Holland & Hannen	5,174	J. & H. Cocks	4,898
V. H. Bywaters & Co.	5,132	W. Shurmur	4,755
Patman & Fotheringham	5,023	J. O. Richardson	4,185
J. Outhwaite & Co.	5,010		

LONDON.—For new offices for the China Mission at Stoke Newington-green. Mr. G. H. Hill, architect ;—

J. Chappell	£8,314	O. Craske	£6,985
W. Shephard	7,765	J. J. Greenwood	6,941
Leslie & Co.	7,606	Lorden & Son	6,847
T. Turner & Co.	7,587	Laurance & Son	6,800
Holliday & Greenwood	7,555	H. L. Holloway	6,787
B. E. Nightingale	7,229	W. Shurmur	6,759
Holloway Bros.	7,056		

LONDON.—For additions and alterations to the Workhouse and Infirmary, Bromley-by-Bow. Mr. J. G. Holman, architect :—

B. E. Nightingale	£12,898	Perry & Co.	11,456
J. Holland	12,590	J. H. Johnson	11,277
J. Chessum	12,450	J. O. Richardson	11,129
W. Shurmur	12,357	F. J. Coxhead	10,828
J. Edmunds	11,949	White & Son	10,050

LONDON.—For rebuilding No. 63, Castle-street, Regent-street. Mr. J. Slater, architect :—

J. L. Holloway	£2,927	W. Shurmur	£2,628
Brown, Son & Co.	2,920	Killby & Gayford	2,578
Charteris & Co.	2,779		

LONDON.—For rebuilding Nos. 55 and 57, High-street, Kensington, for Mr. John Crowle. Mr. Chas. R. Guy Hall, architect, 6, Charles-street, Kensington Court :—

Wall & Co.	£5,246	6 months.
Johnson & Co.	5,217	8 „
Nash	5,195	8 „
Chappell	5,167	7 „
Douglas	4,259	21 weeks. (conditional,
Leslie & Co.	4,200	30 weeks.

LONDON.—For alterations, &c., at 47, St. Mary Abbott's-terrace, Kensington, for Mr. D. Fagan. Mr. Chas. R. Guy Hall, architect :—

Collis	£217	Nash	£180
Douglas	195	Webster (accepted)	149

LONDON.—For the erection of a studio at 5, Campden Hill-square, Notting Hill, for Mrs. Powell. Mr. Chas. R. Guy Hall, architect :—

Walter Nash	£565	John Douglas (accepted subject to modifications)	£464
Joseph Mears	471		

LONDON. — For alterations and repairs at the "Mamelon Tower," Grafton-road, Kentish Town. Messrs. Thorpe & Furniss, architects. No quantities supplied :—

Voller	£1,554	H. & F. Fearman	£1,396
Gould & Brand	1,543	Lamble	1,334
Toms	1,516	Drew & Cadman	1,276

LONDON.—For the formation of proposed new road and sewer, &c., at Clapham, S.W., for Mr. T. G. Foster. Messrs. Lawson & Donkin, surveyors, Bournemouth. Quantities supplied :—

W. J. Botterill	£1,279 0 0	J. L. Cattel	£840 0 0
T. H. Kingerleei	1,250 0 0	W. H. Wheeler	794 0 0
Wm. Wadey & Co.	1,085 0 0	J. Hare	725 0 0
C. Stickland	989 13 6	E. Parry	600 0 0
E. King	950 0 0	T. Turner	668 0 0
J. W. Ford & Co.	930 0 0		

Amended Estimates.

J. Hare	£625	E. Parry	£560
T. Turner	582		

LONDON.—For pulling down and rebuilding business premises at Blenheim Grove, Rye-lane, Peckham, for Mr. Robinson. Mr. Robert Willey, architect. No quantities :—

Rowe	£1,225	Tyerman	£1,127
Nightingale	1,180	T. Rider Hunt	1,056
Holliday & Greenwood	1,177	Parker	1,015
Howell J. Williams	1,148	J. O. Richardson, Peckham	889
Burman & Sons	1,140		

LONDON.—For alterations and additions at 4, Upper Thames-street, E.C., for Messrs. Steven Bros. & Co. Mr. H. Percy Monckton, architect, 32, Walbrook, E.C. :—

Harris & Wardrop	£1,384	Turtle & Appleton	£1,280
E. A. Roome	1,345	D. Charteris	994

LONDON.—For painting, cleansing, distempering, and sundry repairs to the Chelsea Infirmary, Cale-street, Chelsea, S.W., for the Guardians of Chelsea. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. :—

Jones	£814 4	McCarthy	£526 0
Lilly & Lilly	620 0	W. & E. Mills	497 0
Mason	568 0	Barber & Oliver	481 0
Foxley	560 0	G. Wade, Chelsea*	419 15
Jenner	543 0	Riley	409 12

*Accepted.

LONDON.—For extra story and other works at 32, Barkstone Gardens, S.W., for Mr. Townsend Green. Mr. C. W. Willoughby, surveyor, No. 22, Chancery-lane :—

		Extra for Mahogany Dado.
Whitaker	£422	£22
Roberts	380	15
Horton (accepted)	315	*nil.*

LYMM (Cheshire).—Accepted for the construction of about 2,000 yards stoneware pipe sewers, &c., for the Local Board. Mr. G. Herbert Bayley, Engineer, Lymm, Cheshire :—

General Contract.—Worthington & Pownall, Manchester £2,325 9 10

Ejectors and Air Compressors.—Hughes & Lancaster, Westminster 515 10 0

MAIDSTONE.—For the erection of new buildings and restoration after fire, at the Medway Paper Mills Company's, Ltd., premises. Mr. H. Percy Monckton, architect, 32, Walbrook, E.C. :—

Buildings.

A. N. Pryer & Co.	£2,241 0 0	G. E. Wallis & Sons (accepted)	£2,147 0 0
R. Avard	2,163 0 0		

Iron Work.

A. and G. Main & Co.	£260 10 0	The Gospel Oak Iron Co.*	£226 7 6
Croggon & Co.	247 10 0		
F. Braby & Co.	247 0 0		

*Accepted.

NEWPORT (Mon.).—For erecting new premises, shops, arcade, hotel, and stables, High-street, Newport. Messrs. Habershon & Fawckner, architects :—

D. C. Jones & Co.	£11,121	Stephens, Bastow & Co., Limited	£9,899
W. A. Linton	10,605	J. Linton	9,804
W. Price	10,214	Blackburn	9,777
G. Williams	10,048		

PARKESTON (Essex).—For the erection of a new school for girls, addition to boys' school, new closets, playgrounds, boundary walls, &c., for the Ramsey School Board. Mr. J. W. Start, architect, Cups-chambers, High-street, Colchester. Quantities by the architect :—

H. J. Linzell	£3,545 0 0	F. Dupont	£3,130 0 0
E. West	3,430 0 0	Kerridge & Shaw	3,097 0 0
Ripper Bros.	3,395 0 0	R. Beaumont	3,003 0 0
Girling & Coe	3,297 0 0	E. Saunders	2,995 0 0
W. A. Chambers	3,199 0 0	Smith, Beaumont, & Dawson	2,889 16 7½
G. Dobson	3,194 0 0		
H. Everett & Son	3,189 0 0		

PARKSTONE (Dorset). — For proposed Baptist chapel at Heatherlands, Upper Parkstone, Dorset. Messrs. Lawson & Donkin, architects and surveyors, Bournemouth :—

T. Dean	£473 0 0	J. Gulliver	£374 0 0
Entwisle & Cox	425 0 0	W. H. C. Curtis	359 0 0
W. J. Chinchen	380 0 0	W. Piercy	333 15 0
J. Hillman	377 17 6		

PLYMOUTH.—For the erection of new house, "Old Road Inn," coach-house, and stables, at Laira. Mr. John H. Dwelley, architect, Plymouth :—

Wyatt & Corber	£860 14	Triscott	£750 0
French	850 13	Cottle	675 0
Williams & Westlake	776 0	Pearn & Sons*	625 0

*Accepted.

SIDCUP (Kent).—For the erection of a mission hall, Longlands, Sidcup, Kent. Mr. C. Innes, architect, 27, Queen-street, City :—

Hope	£1,088	Knight	£907
Stebbings & Pannett	1,040	Pool, Longlands	741

[All of Sidcup.]

STOKE-UPON-TRENT.—For laying foundations and the brick and stone work in connexion with the widening of the Trent bridge. Mr. Wm. Bowen, Borough Surveyor, Town Hall, Stoke-upon-Trent :—

F. Barke	£658	G. W. Hancock (accepted)	£597

[Both of Stoke-upon-Trent.]

TON MAWR (Wales).—Accepted for the erection of school-buildings, for the Committee of Baglan Higher National Schools. Mr. J. C. Jones, architect, Baglan, Briton Ferry :—

Daniel Lloyd, Cymmer, Bridgend £861 0 0

WEST HAM.—For the erection of the Drew-road Schools, Silvertown, E., to accommodate 1,200 children for the West Ham School Board. Messrs. J. T. Newman & Jacques, Architects to the Board, 2, Fen Court, E.C. Quantities by Messrs. R. L. Curtis & Sons :—

Gregar & Son	£22,490	Maddison	£20,150
Goodchild	21,086	Reed & Son	19,896
Catley	20,527	Fulcher	19,877
Hosking	20,472	Sharpe*	18,990
Hearle & Farrow	20,406		

* Accepted subject to the approval of the Education Department.

WEST LAVINGTON (Wilts.).—For the erection of the Dauntsey Agricultural School, West Lavington, Wilts., for the Governors of the School. Mr. Charles E. Ponting, F.S.A., architect, Lockeridge, Marlborough :—

Dove Bros.	£9,275	Jones & Co.	£8,684
Potter	9,120	Stephens, Bastow, & Co.	8,499
Estcourt & Son	9,087	Wilkins & Sons	8,453
Hatherley & Carr	8,997	Holloway Bros.	8,250
Green & Son	8,960	Hoskings, Hungerford*	7,098
W. Cowlin & Son	8,783		

* Accepted.

WIMBLEDON. — For erecting two attached houses in the Berkeley-place, for Mr. Richmond Ritchie. Mr. James Ransome, architect, 11, Argyll-place, W. Quantities by Mr. Henry Riley, 8, Buckingham-street, Adelphi, W.C. :—

Estimate No. 1 (exclusive of Drainage and Sanitary Work).

T. Grant	£3,200	Holliday & Greenwood	£2,940
Bulled & Co.	3,049	J. H. Jarvis	2,873
Oldridge & Son	2,998	A. Wallis	2,813
Holloway Bros.	2,942		

Estimate No. 2 (including Drainage and Sanitary Work), by Mr. Rogers Field, C.E., 7, Victoria-street, S.W. Quantities by Mr. Henry Riley :—

A. Wallis ..... £3,176 | J. H. Jarvis (accepted) £3,088

WRABNESS (Essex).—Accepted for new fittings and sundry works in the chancel of the Parish Church. Mr. J. Charles Bourne, architect :—

William Paskell, Wix £104 0 0

[No competition.]

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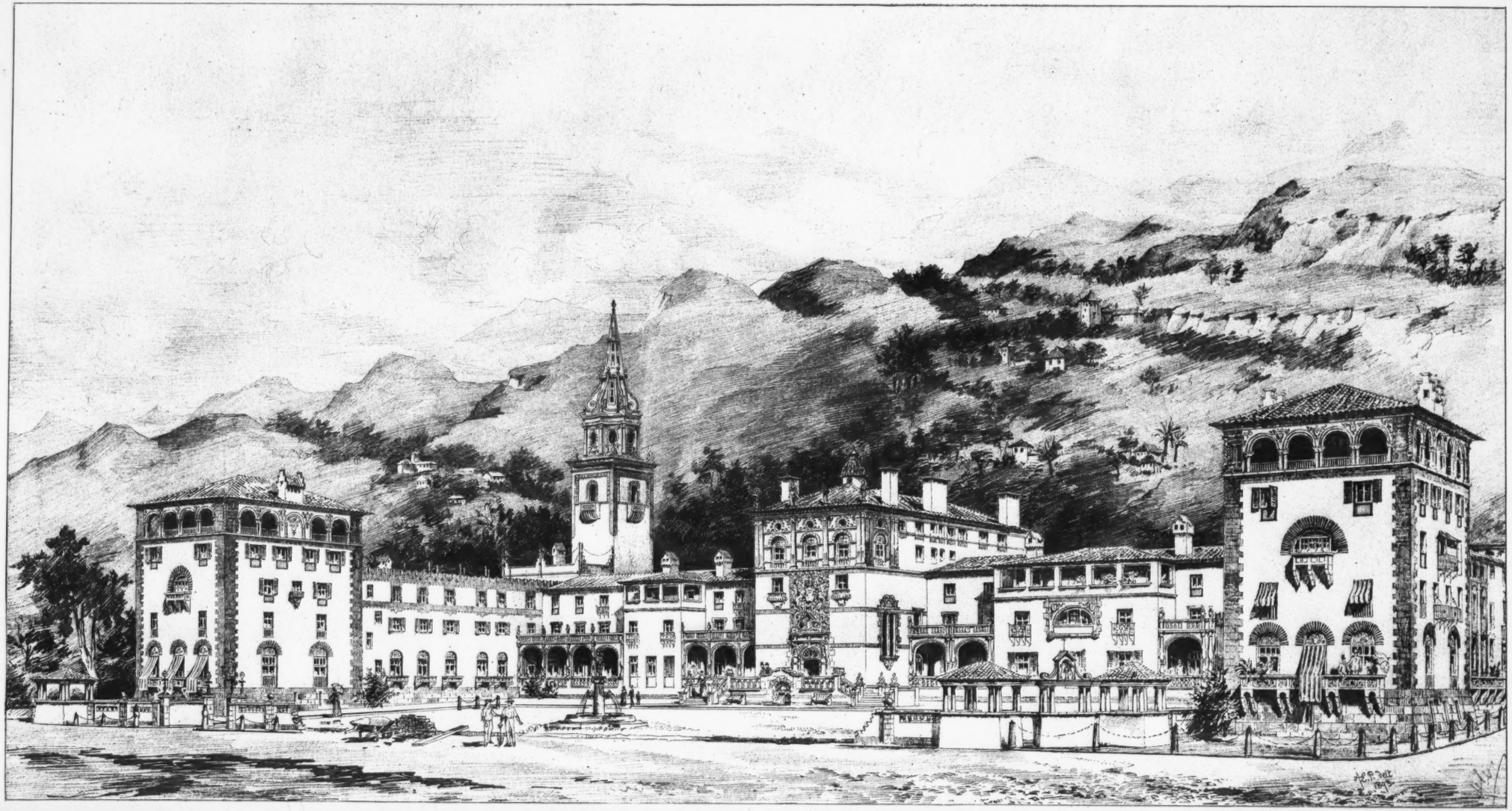

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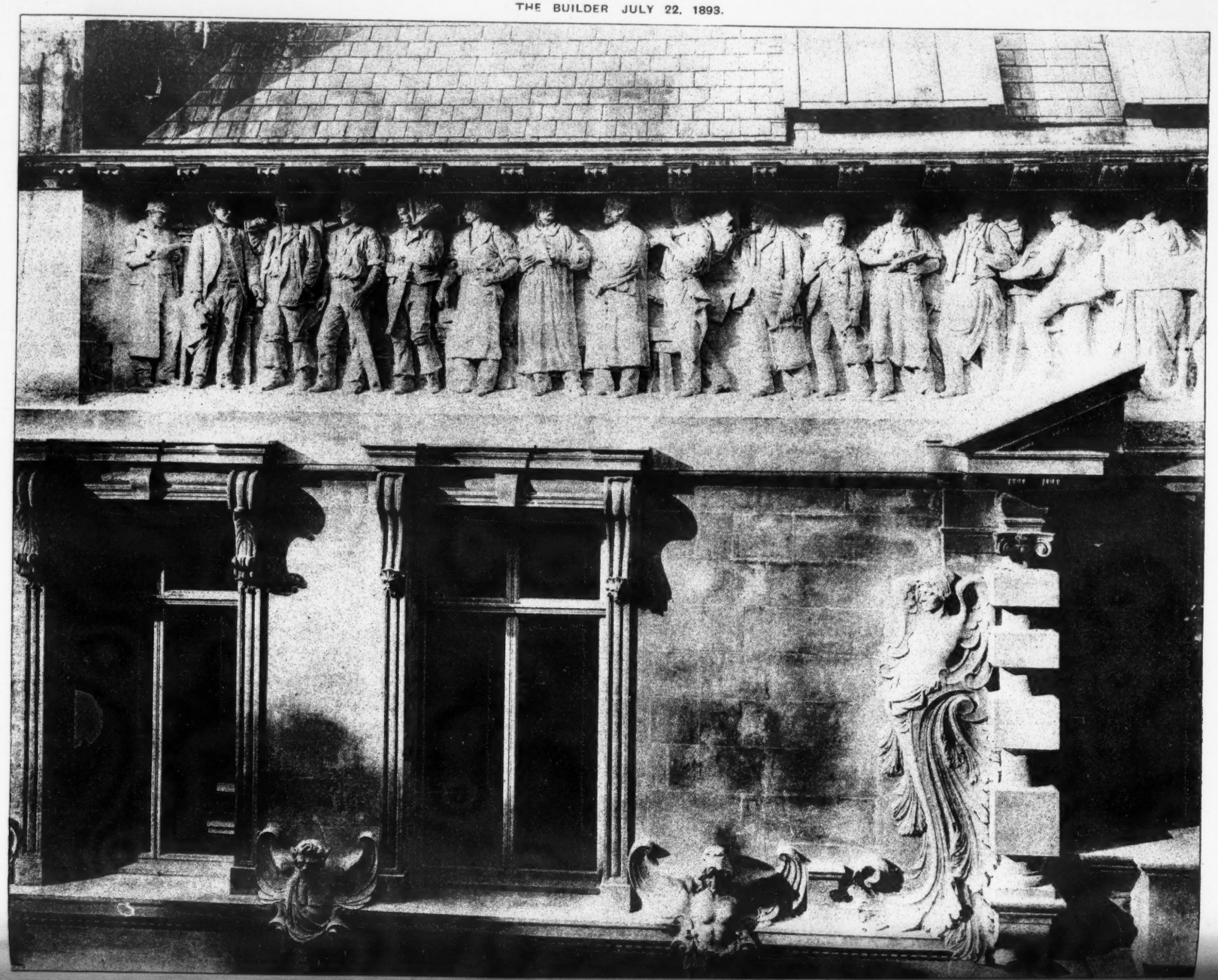

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Paris Salon, 1893.

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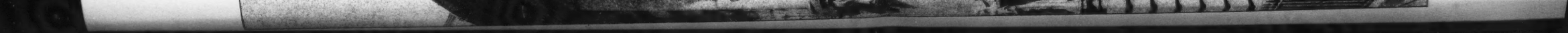

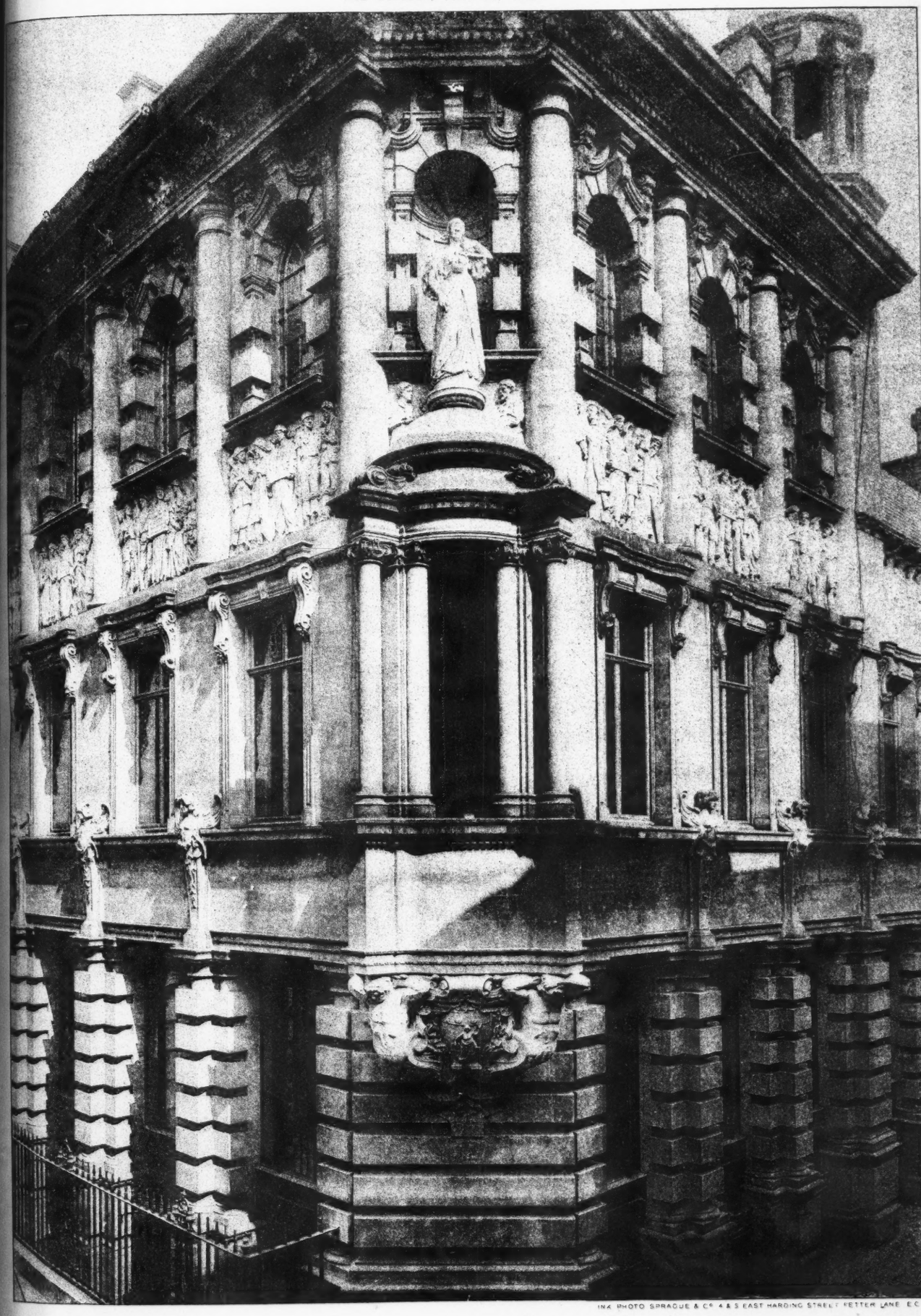

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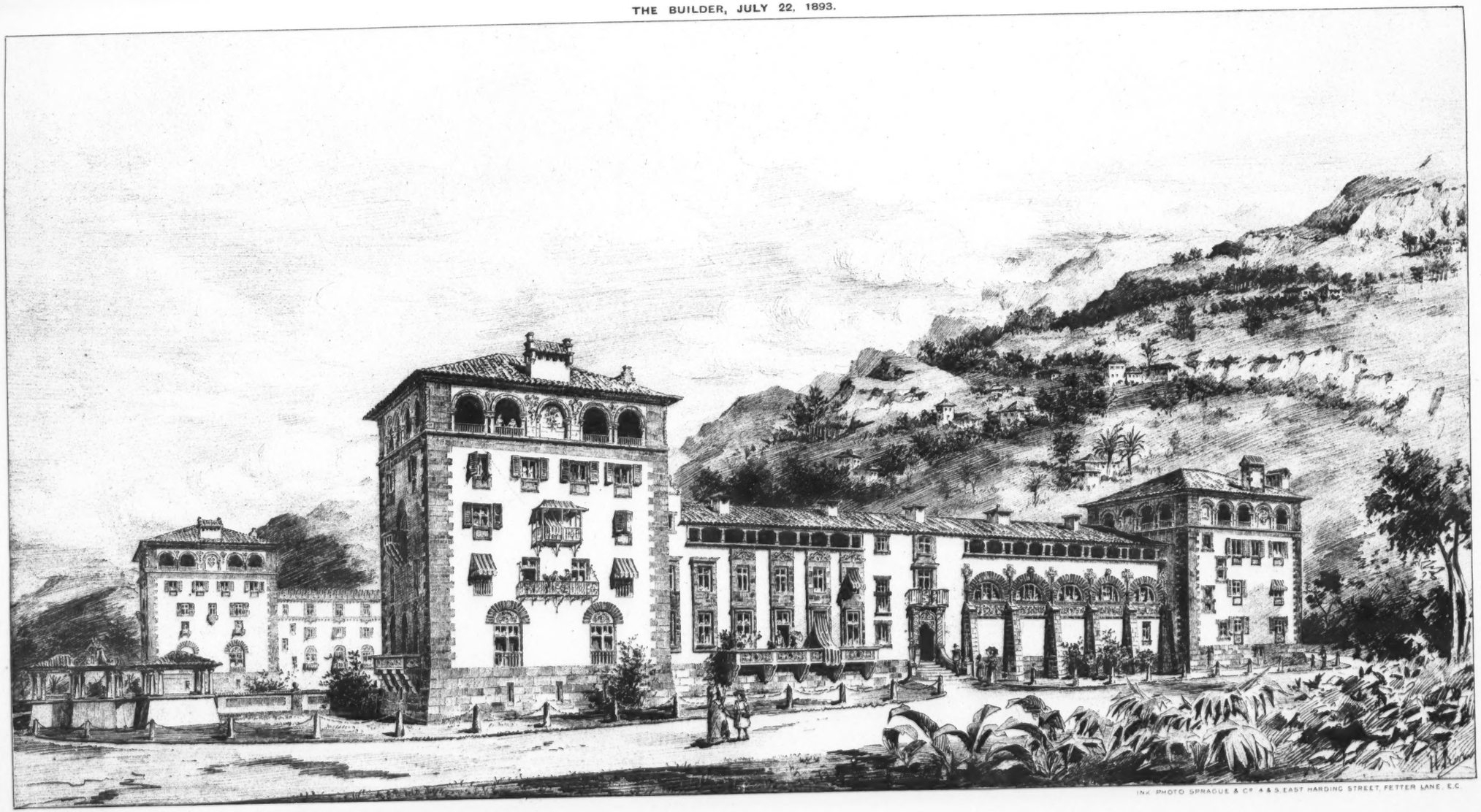

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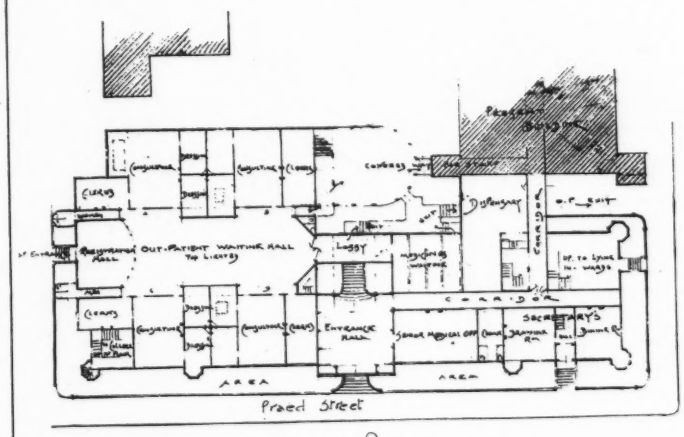
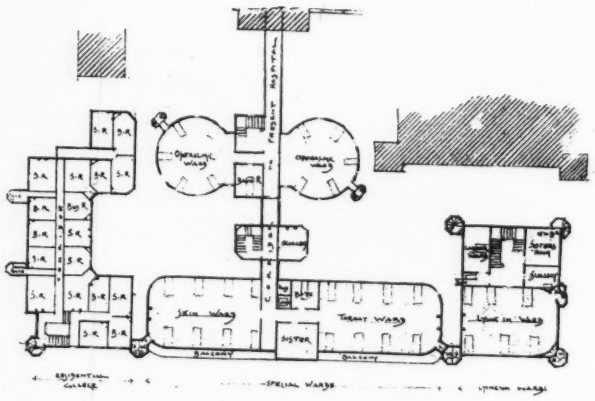
Royal Academy Exhibition, 1893.



-Ground Plan-

ST. MARY'S HOSPITAL, PADDINGTON: PERSPECTIVE VIEW OF DESIGN FOR CLARENCE M

Royal Academy Exhibition, 1893.



Plan of Ward Floor.

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

OF DESIGN FOR CLARENCE MEMORIAL WING.—Messrs. Salter & Adams, Architects.